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Market Performance Analysis of the Online News Industry

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Market Performance Analysis of the Online News Industry

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Dedication

To my husband, my parents, and my parents-in-law.

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To the 208 media executives who participated in the National Survey of the Online News Industry for this dissertation, I owe them my deep appreciation. And, finally, I must thank all of my friends and colleagues who stood by me, for better or for worse, throughout the years.

Market Performance Analysis of the Online News Industry

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The online news industry faces a challenge: Whether online news media can produce enough quality content that generates revenue and profit at a level comparable to traditional media. To meet the challenge, this dissertation applied two economic models, the industrial organization (IO) and the resource-based view of the firm (RBV), to locate the determinants of market performance for the online news industry. Together, the determinants derived from both models explained 19 to 35 percent of variance in market performance among the 208 news sites in the study. Separately, IO's industry variables were twice as powerful as RBV's firm variables in explaining news sites' revenue growth, profitability, and relative performance. A *post hoc* analysis using a news site's traffic as another dependent variable showed that the importance of the industry and firm effects differs substantially across market performance and traffic. A detailed examination suggested that industry effects were powerful in explaining the extent of news sites' market performance, whereas firm effects were influential in explaining news sites' traffic. However, the study argued that generating traffic should not be news sites' ultimate goal but their relay station; otherwise the solvency challenge remains.

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Chapter 1: Introduction

MISSION OF THE STUDY

In the 1950s, comedian Fred Allen said, "Television is trying to get radio to pucker up for the kiss of death." As the '50s continued, however, radio began to find a new path to gain listeners. The radio industry "had been at the top of the world and was no longer able to recapture that position" (Rhoads, 1996, p.258). Since the number of households with television receivers rose from 172,000 in 1948 to nearly 42 million in 1958 (Rothenbuhler & McCourt, 2002), the flow of advertising money from radio to television compelled the radio industry to undergo radical financial reform. Given that radio and television both have transformed themselves and remain viable industries today, radio's loss of its status as the dominant broadcast medium perhaps helped pioneer, not hinder, many changes in media industries. Could the past tell us something about the future?

The challenge

The news industry as a whole is undergoing another transformation because of the emergence of new technologies that has impacted all media outlets. With audiences dispersing across ever more media outlets, nearly every media industry now is losing popularity (Pew Research Center, 2006a). But many news media have tried to redefine their appeal and their purpose (e.g., hyper-localism), based on diminished capacity on each medium. For the traditional media, the challenge is how to manage decline. But for Internet media, some doubt that Internet revenue will grow to the point where it can pay for journalism on a scale to which media are accustomed. To better prepare for the challenge, Figure 1 shows the formation of the online news industry in terms of three

major factors: social, technological, and political.

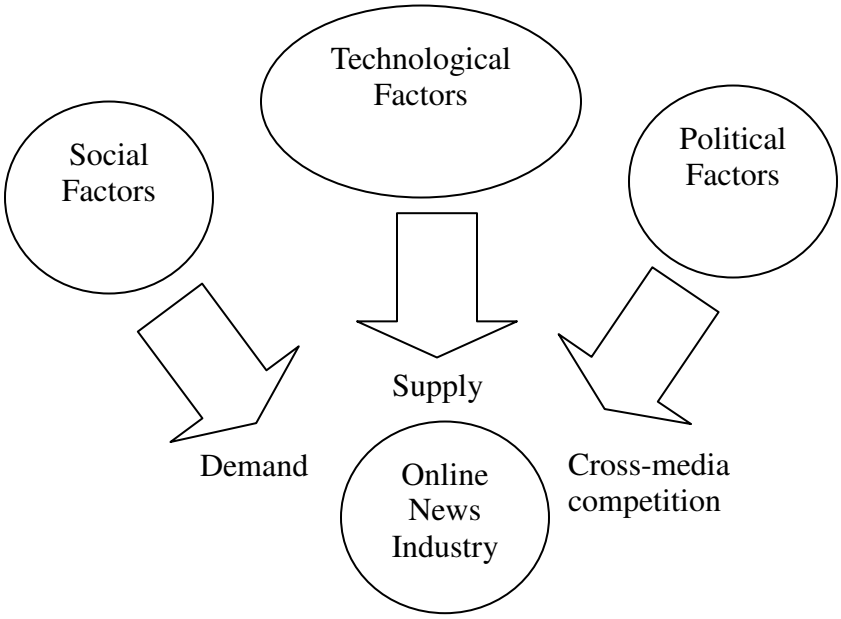

Figure 1. Formation of the Online News Industry

First, social factors (e.g., modernization) created a demand for online news. People are busier than ever, so news consumption patterns changed to adjust to new lifestyles (Haythornthwaite, 2001). Decades ago, for example, many people read newspapers in the morning, went to work, and came home to watch national and local television news with their families, and even read an afternoon newspaper. Now, people are busy or involved in leisure activities, so they demand the latest information as quickly as possible. Some numbers regarding consumer news demand may explain the migration from traditional media to new media. Daily newspaper circulation has dropped 1 percent per year since 1990; network evening news ratings have declined 59 percent since their peak 30 years ago (Project for Excellence in Journalism, 2004). Newspapers have been

regarded as yesterday's news and national broadcast news has lost audience to the 24/7 cable news channels such as CNN or Fox News since 1999 (Pew Research Center, 2006c). Conversely, online news, trailing behind television news and newspapers, became the third main source of news among American adults.

Second, technological factors (e.g., digitalization) have increased the number of suppliers in the online news industry. Digitalization originated from Cold War fears of a surprise attack by Soviet bombers; the United States began to develop a network of computers in the early 1950s that could track incoming aircraft and help coordinate military responses (Fidler, 1997). To communicate among computers, all information was processed, stored, and transmitted in digital form—as zeros and ones. The significance of digitalization lies in the distinction between digital and analog. Analog computers basically measure continuously changing conditions on a relative scale and are heavily influenced by fluctuations or random variations during transmission over long distances, so a serious flaw of all analog computers is a lack of precision. Digital computers, on the other hand, have to recognize only zeros and ones, which provides a high degree of precision. The revolution of ones and zeros enables digital technologies, including the Internet, and leads to digital convergence among cable, telephony, and computer-related industries (Wallis, 1998). For example, cable operators that for decades provided multi-channel video programming now offer home phone services; conversely, telephone and satellite companies now provide video programming. The merger of digital technologies has brought all modes of communications into one system. In news industries, digitalization allows news media of all forms to provide content on the Internet.

Third, political factors promoted cross-media competition among online news owners. The Internet has been regarded as open, global, not dependent on scarce spectrum, and presenting very low barriers to entry (Dempsey, 2002). The U.S.

legislature classifies the Internet as neither a broadcast medium nor a telecommunications service. Instead, a new legal term—"information service"—was created for Web sites and Internet Service Providers. Therefore, the U.S. special public interest rules applicable to broadcast media do not apply to the Internet, nor do the common carrier rules applicable to providers of telecommunications services. In other words, no ownership regulation applies to the Internet. Although looking at Internet media ownership always should take traditional media owners into account because of their close ties, the deregulation of the media industries has also increased, rather than decreased, online news competition. Since the 1970s, the U.S. government has undone many of the rules and regulations related to both print and broadcast media (Chambers & Howard, 2006; Compaine, 2000a). For print, Congress passed the Newspaper Preservation Act of 1970 that allowed newspaper competitors to form joint operating agreements (JOAs), which permitted two newspapers in a market to combine their business operations. For broadcast, Congress and the FCC have deregulated local marketing since 1971, relaxing duopoly rules since 1992, lifting the limit on properties one company can own on a national basis (i.e., the Telecommunications Act of 1996), and replacing the Cross Media Ownership Rules of 1975 with broadcast ownership rules in June 2003.

In sum, the formation of the online news industry appeared to create a new market because people increasingly demand to know what is happening in the world anytime and anywhere. However, the new market was created not for certain media but for all media because of the diffusion of digital technologies and the lack of regulation. As a result, the online news industry became a market with large demand and large supply and sent a challenge to all the members in the industry.

The focus

Thus, this dissertation attempts to apply media economics to provide solutions for

the challenge because economic and financial concerns are central to understanding media firms and industries in a capitalist society. Robert G. Picard, a pioneer in media economics, defined media economics as a "specific application of economic laws and theories to media industries and firms, showing how economic, regulatory, and financial pressures direct and constrain activities and their influences on the dynamics of media markets" (Picard, 2003, p. 301). Media economics research began to emerge during the 1950s (Albarran, 1998) and has concerned itself with three main traditions: (a) a theoretical tradition, (b) an applied tradition, and (c) a critical tradition (Picard, 2003). The theoretical tradition uses neoclassical economics to explain the forces that require actions involved in media industries. Important work in this tradition includes Owen, Beebe and Willard's (1974) *Television Economics*, Webb's (1983) *The Economics of Cable Television*, and Owen and Wildman's (1992) *Video Economics*. The applied tradition often has explored the state and change of media markets or the consumer and advertising trends of media industries. Books using this tradition are Compaine's (1979) *Who Owns the Media?*, Picard's (1989; 2002) *Media Economics: Concepts and Issues* and *The Economics and Financing of Media Companies*, and Albarran's (1996; 2002) *Media Economics: Understanding Markets, Industries and Concepts*. The critical tradition focuses on issues of welfare economics with strong cultural and social orientation, via works such as Mosco and Wasko's (1988) *The Political Economy of Information* and Garnham's (1990) *Capitalism and Communication: Global Culture and Information*. This study attempts to contribute to the theoretical tradition for two reasons: (a) few studies empirically test economic models in media industries, and (b) few studies quantify the explanatory power of economic models for media industries.

Within the theoretical tradition, market performance often is regarded as an ultimate outcome (i.e., dependent variables) for an industry. To determine how an

industry performs, casual observation, common-sense judgment, and formalized economic theories suggest that industry structure and firm behavior be examined (Bain, 1959). For example, the common-sense judgment considers a firm as a person whose performance logically may be impacted by external and internal forces. Thus, a firm's market performance is influenced by external industry structure or internal firm behavior. Specifically, market performance includes profitability, efficiency, progress, and the like; industry structure includes concentration, product differentiation, barriers to entry of new firms, and so on; firm behavior represents strategies or activities of a firm. Although industry structure and firm behavior are common determinants of market performance, different schools of thought assign different weights to them (see a detailed introduction of the two schools, including their inception and key concepts, in Chapter 2).

One perspective, the industrial organization (IO) model, considers industry structure a central predictor of market performance and treats various industry participants as a unitary actor (Bain, 1959; Scherer & Ross, 1990). For example, an IO economist would attribute the high profitability of a local TV station mostly to its oligopolistic industry structure instead of its tailored firm behavior, because they assume all local stations under the same industry structure act similarly. However, a recently developed perspective—the resource-based view (RBV) of the firm model—argues for firm-specific, strategic influence on market performance (Barney, 1991; Wernerfelt, 1984). In the above example, RBV economists would credit the financial success of a local TV station to its non-imitable resources, such as reputation or quality, because they believe that some firms outperform others even under the same industry structure. Thus, a fundamental question facing the two schools is which school better explains the reality of market performance.

To meet the solvency challenge for the online news industry and to respond to the

theoretical debate of the two economic models, this study examines the relative importance of industry structure effects and firm behavior effects on market performance in the ever-changing online news industry. Industry structure effects (abbreviated as "industry effects" hereafter) refer to attributes common to an industry that produce similar performance, whereas firm behavior effects (abbreviated as "firm effects" hereafter) capture the unique firm resources that influence the variance in performance.

ORGANIZATION OF THE STUDY

The paper is organized as follows: Chapter 1 introduces the mission of this study; Chapter 2 gives an overview of the online news industry in the United States, introduces the IO and RBV models, and states hypotheses and research questions; Chapter 3 describes a multi-method approach to data collection and various statistics for quantitative analyses; Chapter 4 reports the results about all bivariate relationships among independents and dependents, and the relative importance of the two models in explaining the online news sites' performance; Chapter 5 explains whether empirical results confirm the hypotheses and research questions derived from the two theoretical models; and Chapter 6 discusses possible contributions and limitations of this study to media economics and the online news industry. Specifically, each chapter contains the following materials.

Chapter 1 first states a solvency challenge facing the online new industry and then reasons three possible factors (i.e., social, technological, and political) contributing to the challenge of the industry. Then, it introduces media economics as a focal discipline for the market performance analysis of the online news industry. Lastly, it suggests two theoretical models (i.e., the IO and RBV) in the area of media economics to respond to the challenge.

Chapter 2 attempts to lay the foundation for the dissertation. To analyze the

market performance of the online news industry, it first reviews the industry, including different perspectives toward the state of online news and previous studies aiming at maturing the online news industry. Second, it discusses the need to analyze the industry's market performance because previous solutions, such as new journalistic models or new business models, are content-driven or firm-based analyses without taking into account the industry as a whole. Third, it introduces two competing theoretical models known for their explanatory power on market performance. Finally, the chapter states hypotheses and asks research questions using the two models to explain market performance in the context of the online news industry.

Chapter 3 details the procedures by which this study was conducted. To clarify the relationships, this study uses a multi-method approach to data collection. First, a Web-based survey of news sites' managers was conducted because business or financial data were not available from one person or one place. Second, audience traffic data from a third-party rating company were acquired because self-reported Web logs could vary dramatically in methodology. Third, news site's market size and owner information were collected from industry reports.

Chapter 4 provides a thorough description of the data and the relationships found among this study's variables. It presents a sample profile characterizing the shape of distributions of all variables in this study, correlation matrixes examining the hypothesized bivariate relationships, multiple regression analyses inspecting the first two research questions about the effects of industry and firm on performance, and hierarchical regression scrutinizing the last research question about the relative importance of industry and firm effects.

Chapter 5 synthesizes and explains research findings for the present study. Based on the IO and RBV models, eight hypotheses and three research questions were

developed. This chapter specifies reasons for hypothesis-testing results, and then compares the explanatory power of industry and firm variables in three contexts: effects between the IO vs. RBV models; effects before vs. after controlling for the other model; and effects found in the present study vs. in previous research. Last, a *post hoc* analysis using a new dependent variable also is attempted to explore alternative explanation about whether firm behavior has any explanatory power in the online news industry.

The last chapter recaps the challenge for the online news industry and provides solutions implied by the results found in the present study. The chapter also addresses theoretical and practical contributions to enlighten the debate between the IO and RBV schools and to help the online news industry identify the determinants of superior market performance. Finally, some limitations that may lead to future research also are specified.

Chapter 2: Literature Review

This chapter attempts to lay the foundation for the dissertation. To analyze the market performance of the online news industry, it (a) reviews the industry, including different perspectives of the state of online news and previous studies regarding the maturing of the online news industry; (b) discusses the need to analyze the industry's market performance by looking at industry and firm at the same time; (c) introduces two competing theoretical models known for their explanatory power on market performance; and (d) states hypotheses and asks research questions using the two models to explain market performance in the context of the online news industry

THE ONLINE NEWS INDUSTRY

Because the online news industry changes rapidly, some data presented below may be outdated by the time you read it. So this section focuses instead on various issues facing the industry: its current state from different perspectives, its challenges and attempted solutions by previous studies, and the need for a market performance analysis of the online news industry.

The state of the online news industry

Optimistic views

There are optimistic and pessimistic views of the current state of online news. The optimistic view sees online news as saving traditional media, whereas the pessimistic view sees more uncertainty. People are optimistic because the online audience is stabilizing, revenue is growing, and content is improving. The Pew Internet & American Life Project[1] found that the U.S. Internet adoption rate had reached 73 percent in 2006.

1. The Pew Internet & American Life Project periodically reports the impact of the Internet on various issues.

Only 15 percent of American adults in 1995 read the news on the Internet; a decade later, 47 percent[2] had done so (Pew Research Center, 2006a). Notably, 31 percent of Americans reported regularly getting news online (Pew Research Center, 2006b). In addition, the Internet attracts audiences from traditional media. Compared to a year ago, about 20 percent of online news readers in 2006 spent less time on television and 35 percent of them read the print version less often (Project for Excellence in Journalism, 2006).

While more people go online, more advertisers place ads online. The Interactive Advertising Bureau (2007) announced that Internet advertising revenue amounted to $17 billion in 2006, up from $12 billion in 2005 (see Table 1); e.g., Internet advertising revenue had grown 36 percent in one year. On the other hand, traditional media are not as promising as the Internet: Newspapers and television revenue grew only 7 and 14 percent, respectively, and radio lost 4 percent compared to 2005. Internet industries collected 182 percent more revenue in 2006 than in 2002, whereas television was down 5 percent from 2002; newspapers and radio made, respectively, 16 and 10 percent more in 2006 than in 2002 (see Table 1). Because these numbers signal a decline or stale growth in traditional media, media companies now are trying several ways to make sure their audiences migrate to their own Web sites (e.g., *NBC*'s audience goes to *msnbc.com* and *The New York Times*'s readers go to *nytimes.com*) rather than to others.

2. Table 2 shows the percentage of American adults who ever read online news is 47 (.67x.70) percent, which comes from 67 percent of Internet users have ever read online news in 2006, and the Internet diffusion rate is 70 percent among American adults,.

Table 1. U.S. Advertising Spending: Media Comparisons ($ Billions by Year)

Media Type	2002	2003	2004	2005	2006
Newspapers	44.0	45.5	46.2	47.9	51.2
Broadcast & Cable	42.1	43.3	33.5	35.0	39.9
Radio	18.9	19.5	20.7	21.7	20.8
Internet	6.0	7.3	9.6	12.4	16.9
Total	240	243	257	267	285

Source: Interactive Advertising Bureau. (2007, May). IAB Internet advertising revenue report: 2006 full-year results. Retrieved August 26, 2007, from http://www.iab.net/resources/ad_revenue.asp

In terms of content quality of online news, the Project for Excellence in Journalism (2007) noted at least two positive trends among the 38 news Web sites studied. First, two-thirds of the sites emphasized their own brand and editorial standards. For example, *nytimes.com* and *bbc.co.uk* primarily featured staff reports and relied little on wire copy. Second, 12 of the 38 sites were highly customizable in terms of multiple RSS ("Really Simple Syndication") feeds, podcasting, and mobile phone delivery. Among the best, *washingtonpost.com* allowed visitors to create their own page layouts, subscribe to content through multiple RSS feeds, and arrange to receive a mobile version of the site.

Pessimistic views

Still, pessimism surrounds three aspects of the online news industry: audience, revenue, and content. After a decade of growth, the size of the audience going online for news in 2006 has leveled (see Table 2). The percentage of Adult Americans who said they go online for news only increased two percentage points, from 45 percent in 2004 to 47

percent in 2006, though those who said they go online for news yesterday increased from 27 percent to 31 percent (Pew Research Center, 2006b). In terms of regular usage, more Americans (31 vs. 29 percent) read online news three or more days a week but fewer (27 vs. 34 percent) do it every day compared to two years ago. Also, those who went online for news yesterday spent only an average of six minutes doing so, far less than other media outlets (e.g., 30 minutes for TV news, 15 minutes for newspapers). One reason may be new technologies, such as RSS, podcasting, and cell phones, which may not be counted as online news in people's minds. People also may not consider news or wire stories from blogs, campaign sites, or government sites as online news. Nonetheless, the audience for those sites remains small, so it is very likely not everyone will go online for news as eagerly as earlier adopters (Project for Excellence in Journalism, 2007).

Table 2. Online News Usage Overtime (in Percent)

Usage	2000	2002	2004	2006
Ever	32	40	45	47
Yesterday	22	26	27	31
Three days or more per week	23	25	29	31
Every day	--	--	34	27
Time spent with news (min.)	--	--	6	6

Source: Pew Research Center. (2006b, July 30). Online papers modestly boost newspaper readership. Retrieved March 22, 2007, from http://people-press.org/reports/display.php3?ReportID=282

Despite the revenue growth, Internet advertising revenue is a relatively small share of total advertising dollars. In 2006, Internet advertising revenue accounted for $17

billion, compared to newspapers' $51 billion, television's $40 billion, and radio's $21 billion (see Table 1). Traditional media realized that "publishing on the Web is easy; making money is the hard part" (Mings & White, 2000, p. 63). Media companies only recently started to disclose their Internet profitability: Although no percentage breakdown, Table 3, based on results provided by the Project for Excellence in Journalism, gives an overview of whether the online news sites are profitable in terms of media affiliations. For newspapers, 95 percent of newspaper sites reported profitable in 2005; whereas the economic picture for other media industries is not as promising: only 24 percent of local television sites and 4 percent of all radio sites reported making a profit in 2005. In sum, newspaper sites are more profitable than others, but the online news industry still has a long way to go before it can begin to compare with the economics of traditional media.

Table 3. Percentage of Profitable News Sites in 2005

Type of Sites	Percentage of Profitability
Newspaper	95
Local TV	24
Radio	4

Source: Project for Excellence in Journalism. (2007). The state of the news media 2007: An annual report on American journalism. Retrieved March 22, 2007, from http://stateofthemedia.org/2007/index.asp

With regard to content, the Project for Excellence in Journalism (2007) suggests that online news still is immature in user participation, use of multimedia, and information depth. The participatory nature of the Web is more theory than fact, in other

words. A dozen out of the studied 38 news sites had no user content, no live discussion, and not even an e-mail address of a news story's author for comments or questions. The multimedia potential of the Web also was not possible because most news content was just narrative text. Despite the Web's infinite space, many news sites still treat their lead stories as stand-alone reports without even one related link to additional information or previous coverage.

Previous studies

As a result of these mixed perceptions, a fundamental challenge to the online news industry is whether the news Web sites can generate revenue and profit at a level comparable to traditional media. In response, previous studies have proposed or suggested various solutions, such as new journalistic models and new business models. Here, various solutions and their rationale are reviewed.

New journalistic models

Some media scholars suggested that media discover new ways to tell journalistic stories on the Internet (Kurpius, 2002; Massey & Levy, 1999; Singer, 2001). Just as traditional media have their own storytelling styles, the Internet calls for a new language for a new journalism. For example, newspaper writers usually follow an inverted pyramid style to save readers' time, and radio and television reporters often write in a conversational tone for people's ears. The Internet essentially is a composite of all traditional media (e.g., newspapers, magazine, radio, and television), so journalists have to decide which features of the Internet can tell their stories best (Quinn, 2005). That is, journalists, without any format limitation, have to know the best way to tell a story.

Most journalism skills programs include courses on multimedia reporting. According to multimedia journalist and lecturer Jane Stevens (2006), "A multimedia

story is some combination of text, still photographs, video clips, audio, graphics, and interactivity presented on a Web site in a nonlinear format in which the information in each medium is complementary, not redundant." But online news industries still lack established journalistic models. For example, Quinn (2005), who conducted several case studies in the United States, the United Kingdom, Scandinavia, and Southeast Asia, found limited multimedia practice in the real world and stated that multimedia were not about technology but had everything to do with mindset, a way of understanding the strengths and weaknesses of audio, video, image, text, animation, and so on.

Also, scholars urged media to take full advantage of the Internet's interactive features (Massey & Levy, 1999; Tremayne & Dunwoody, 2001) because traditional media do not have the capacity to communicate with their audience as the Internet does. Pavlik (2001) said that interactivity at least enables a much more active and participatory audience. By observing that young audiences are comfortable with active participation in their media experience, such as posting comments about a news story or uploading video about their life, Pavlik suggested that "passive media consumption may not be an inherent preference among audiences but instead a learned behavior" (p. 16). In other words, the Internet introduced a new era of active audience members who could participate *and* produce media content with little cost.

Indeed, news providers, for the first time, can get real-time responses from their audiences. Dan Gillmor (2006), one of the advocates of civic journalism, claimed, "Tomorrow's news reporting and production will be more of a conversation, or a seminar" (p. xxiv). By building blogs (web logs), chat rooms, or online forums, journalists can get readers' feedback instantly. Some scholars believe that interactivity actually may create a more balanced and careful kind of journalism (Alves, 2001). In sum, new journalistic models suggested by previous studies center on the application of

multimedia and interactivity.

New business models

Simultaneously, scholars have examined previous, current, and potential business models in terms of viability specifically for the Web. Successful business models in traditional media included (a) a pure subscription model, (b) a mix of subscription and advertising model, and (c) a pure advertising model.

Picard (1989) was the first media scholar to recognize a unique difference of media industries from other industries, noting that media operate in "a dual product market" (p. 17). The first market is the "information market" that sells content; the second market—in which many, but not all, media participate—is the "advertising market" that sells audiences (Chyi & Sylvie, 1998). So, media can sell their content to either subscribers, advertisers, or both. In one extreme, media such as book publishers and filmmakers sell only their content; conversely, media such as broadcasters give their content away and then sell their audience to advertisers. In the middle are the media (e.g., newspapers, magazines, or cable networks) which sell their content to an audience for a low price and seek subsidies from advertisers. Along the continuum are different business or revenue models. News media in particular are almost all advertiser-supported. Advertising is responsible for about 60–70 percent of the revenue stream at most newspapers and almost 100 percent in broadcast news outlets (Mings and White, 2000).

But the aforementioned traditional models have not worked well on the Internet. For example, *USA TODAY* tried charging $4.95 a month when it was introduced online and reportedly suffered with fewer than 2,000 subscribers months later (Compaine, 2000b). Chyi (2005) warned against the viability of a subscription model for the online news industry because 78 percent of respondents said they were not likely to pay for online news in the future. On the other hand, a purely ad-driven, online-only news

publication, *The Web Review*, closed after four months (Mings and White, 2000). Thus, several new models emerged: (a) registration; (b) support or complement; (c) partnership; (d) portal; and (e) transactional.

A registration model, used by most local newspaper sites, requires readers to release their personal information in exchange for news services; news sites then use those audience demographics to attract advertisers. A support or complement model, focusing on building audience relationships rather than making profits, was adopted by most television broadcasters in the beginning of the 2000s. Chan-Olmsted and Ha (2003) surveyed 219 local stations and found that the Internet was used mostly as a support to complement the stations' offline content. However, more and more television sites are creating advertising spaces for revenue. A partnership model, proposed by Mings and White (2000), requires news providers to partner with Internet Service Providers (ISPs), Web browsers, other Web sites, and so on. For example, 250 U.S. newspapers have begun to partner with classified job-listing Web sites to offset the effects of free listings, such as Craigslist (Reuters, 2007). As for revenue streams, different partnerships have different pricing scales: Some exchange technical expertise and some share revenue. A portal model, the most profitable model online, creates value by organizing access to content in a way that creates a brand for the portal that attracts returning users (Picard, 2000). For news sites to apply it, Mings and White (2000) proposed a transactional model that requires a news site operating as a marketplace where consumers can interact with producers, advertisers, and other consumers to buy and sell products and services. That is, news sites can go one step beyond by providing an all-in-one audience service. So far, few news sites have adopted this model.

A NEED FOR A MARKET PERFORMANCE ANALYSIS

All in all, the previous solutions were content-driven or firm-based analyses

without taking into account the industry as a whole. Solutions such as new storytelling techniques or viable business models (which change as time and space change) offer few theoretical linkages between problems and solutions. Therefore, this study calls for a theory-based market performance analysis for the online news industry because market performance is regarded as an ultimate outcome of firms in a market economy. Moreover, aforementioned solutions for the online news industry disproportionately aim at firm behavior (e.g., which combinations of multimedia production work or which business models are viable) while this study considers industry and firm to understand the importance of firm behavior relative to industry structure. The following sections review various definitions of market performance and then introduce two competing theoretical models characterizing industry effects and firm effects on market performance.

Market performance

Conventional media definitions of performance include access to media outlets and content, quality of information, diversity of media output, and so on. Media economist Fu (2003) cautioned against the non-market or socialistic interpretations of performance (e.g., diversity or quality) as market performance because many economic models such as IO were designed to predict economic, rather than social, outcomes. Market performance, as developed by economists, represents "how well the market activity of firms contributes to the enhancement of general material welfare" (Bain, 1959, p.340). However, full appraisal of the "general material welfare" is difficult because the concept is multidimensional and complex. Scherer and Ross (1990), for instance, suggest four dimensions of market performance to meet common interest and importance in every industry: (a) efficiency; (b) progress; (c) full employment; and (d) equity. Efficiency exists if the industry output is produced at minimal total cost and if resources are allocated in an optimal manner; progress involves technology invention and innovation

that drive productivity and growth; full employment exists if the operations of producers facilitate stable employment; and equity is concerned with income distribution effects, such as whether producers prosper at the expense of consumers. Although these dimensions are important, they usually are examined from a macroeconomic orientation (Albarran, 2002) rather than from the level of a firm. Since this study focuses on one industry (i.e., the online news industry), a microeconomic perspective is more appropriate.

A literature review of the microeconomic focus on market performance found that most empirical studies examine either financial performance (Dess & Robinson JR., 1984; Zou & Cavusgil, 2002) or business performance (Venkatraman & Ramanujam, 1986, 1987). Financial performance centers on the use of simple financial indicators assumed to reflect the fulfillment of the economic goals of a firm. This approach typically would examine indicators such as revenue growth, profitability (reflected by ratios such as profit margin, return on assets, return on investment, or return on equity), earnings per share, and so forth. Business performance, in addition to indicators of financial performance, emphasizes non-financial indicators such as market share, new product introduction, product quality, marketing effectiveness, and manufacturing value-added and technological efficiency. Figure 2 depicts a visual representation of the conceptualization of market performance.

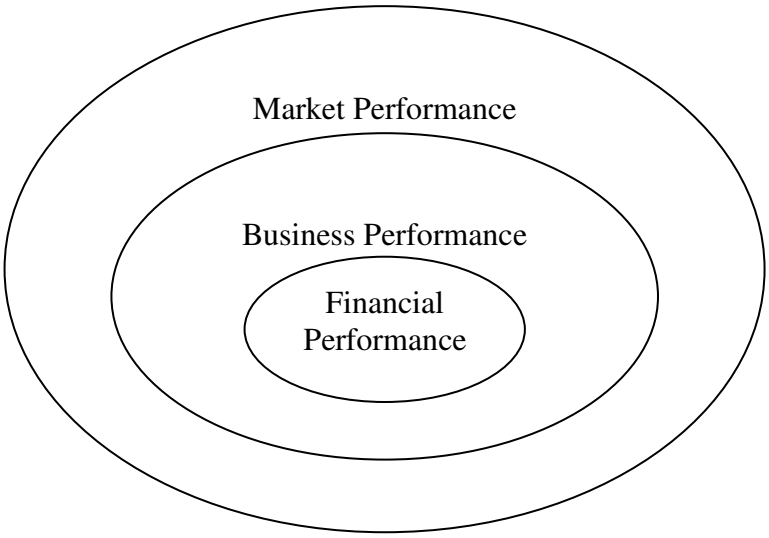

Figure 2. Conceptualization of Market Performance (adapted from Venkatraman and Ramanujam, 1986)

TWO COMPETING THEORETICAL MODELS

Two conceptual frameworks for explaining market performance are used in the present study: the industrial organization (IO) model and the resource-based view (RBV) model, because these two theoretical models compete for explanatory power on market performance. This section introduces the inception and key concepts of each model, compares and contrasts the two models, and then states the objective of the present study: an examination of industry and firm effects on market performance in the online news industry.

The industrial organization (IO) model

Inception

Edward S. Mason (1939) and his Harvard colleagues introduced the structure-conduct-performance approach, which provides an overview of the IO model. The model

delineates a one-way causal relationship that industry structure determines business conduct of firms, which in turn determines market performance (Bain, 1959; Scherer & Ross, 1990). However, various criticisms from the "new" industrial organization economists, such as the Schumpeterian and Chicago schools, disagree with the notion of the one-way causal relationship (Jacquemain, 1987; Mauri & Michaels, 1998; Wirth & Bloch, 1995) because they view industry structure as dynamic and constantly evolving and suggest a feedback effect from firm back to industry. Despite the disagreement, IO economists generally agree that the external environment (i.e., industry structure) in which a firm chooses to compete, rather than the firm's differential behavior, influences a firm's market performance (McGahan & Porter, 1997; Young, 2000). That is, given the different directions of the link between industry structure and firm behavior, it still is plausible to consider industry structure as a basic and key determinant in market performance analysis.

There are four types of industry structure, in decreasing order of competition: (a) perfect competition; (b) monopolistic competition; (c) oligopoly; and (d) monopoly (Bain, 1959; Carlton & Perloff, 2005; Scherer & Ross, 1990). As a rule of thumb, perfect competition is characterized as "highly competitive"; on the other hand, monopoly is described as "highly concentrated."

In a perfect competitive structure, there are several sellers and buyers but none possess market power to influence prices. For example, the agriculture industry, with many sellers, and almost perfectly substitutable products, approximates the perfect competition structure. According to Albarran (2002), no media industries (i.e., newspaper, magazine, book, radio, Internet, and TV) fall in this category. On the other hand, a monopoly market has only one seller, the only provider of a kind of product or service in a given market. In microeconomics, monopolists are regarded as price-makers or price-

setters, whereas buyers only decide whether to purchase. Local utility companies all are monopolists. Also, most local newspapers are considered local monopolists.

Quite a few people confuse monopoly with monopolistic competition because monopolistic competition was added later by Chamberlin (1950) to theorize a composite of monopoly and perfect competition. A monopolistic competitive structure is defined as many firms selling somewhat different products in a market. It is similar to a monopoly structure in that no two products are identical and perfectly substitutable, but it also is similar to a perfectly competitive industry structure because many firms are participating in the market. A typical industry in this category is restaurants. Each restaurant, with its unique location, service, and menu, has more power over what price it can charge. The supposition is that no two homogenous restaurants would open next to each other because both would become price-takers (as opposed to price-makers) or enter into a price war. Media industries such as books, magazines, and radio are monopolistically competitive (Hoskins, McFadyen, & Finn, 2004).

Between monopolistic competition and monopoly is oligopoly, which differs from the others in that it features a small number of sellers. Firms in an oligopoly are mutually interdependent because the behavior of any given firm depends solely on the behavior of the other firms. The major tool of analysis for an oligopoly market is game theory, modeling as if each firm is playing a game with its rivals in order to do the best it can (Young, 2000). In media, the oligopoly industry structure is represented best by the network television industry (Albarran, 2002).

To decide to which structure a market or an industry belongs, the IO model depends upon a variety of indicators, among which (a) concentration, (b) product differentiation, and (c) barriers to entry always are emphasized (Bain, 1959; Scherer & Ross, 1990; Schmalensee, 1989), in the sense that they are the primary industry attributes

that most significantly and systematically influence market performance throughout all industries.

Concentration

Concentration, a heavily studied concept of the IO model, refers to "the extent to which the economic activity of an industry or the whole economy is conducted in the largest firms" (Bowles & Edwards, 1985, p.151). If a market is dominated by a few firms, the market likely will be a monopoly or oligopoly, whereas a market occupied by a large number of firms will induce monopolistic competition or perfect competition. Common measures are the four-firm concentration ratio (CR4), eight-firm concentration ratio (CR8), the Lorenz Curve, and the Herfindahl-Hirschman Index (HHI) (Carlton & Perloff, 2005).

For example, the U.S. Department of Commerce periodically reports the largest four-firm concentration (CR4) and the largest eight-firm concentration (CR8) based on a ratio of the four/eight firms' revenue over the industry revenue. The rule of thumb is that a market is highly concentrated if CR4 $\geq$ 50 percent (or CR8 $\geq$ 75 percent), moderately concentrated if CR4 between 34–49 percent (or CR8 between 51– 74 percent), and lowly concentrated if CR4 $\leq$ 33 percent (or CR8 $\leq$ 50 percent) (Hoskins et al., 2004). Table 4 shows the latest CR4/CR8 of media industries from the 2002 Economic Census: The newspaper[3] and the Internet industries are lowly concentrated; radio stations and television broadcasting are moderately concentrated; cable programming is highly concentrated (U.S. Department of Commerce, 2005, p. 79-87). In other words, the newspaper and the Internet media firms faced greater competition than broadcasters based on national data. Besides, the information industry as a whole also is lowly

3. The way to categorize the newspaper industry as "lowly concentrated" is based on the revenue concentration of big newspaper owners at the national level. This should not be confused with the fact that most U.S. daily newspapers are local monopolists and have no direct competition with other papers.

concentrated, indicating, on average, that there is a high degree of competition among information-related industries. These data may shed some light on the general concern of owners or stockholders about the financial health of information-related industries.

Table 4. Revenue Concentration by Media Industry Segments: 2002

Industry Segment (NAICS[a] code)	CR4	CR8	Industry Structure
Within-industry concentration			
Newspaper publishers (511110)	31.9	44.1	lowly concentrated
Radio stations (515112)	47.0	55.5	moderately concentrated
Television broadcasting (515120)	50.2	60.9	moderately concentrated
Cable programming (515210)	63.9	77.7	highly concentrated
Internet publishing and broadcasting (516110)	25.0	32.3	lowly concentrated
Across-industry concentration			
Information (51)	23.2	34.4	lowly concentrated

[a] NAICS stands for The North American Industry Classification System (NAICS), which has replaced the U.S. Standard Industrial Classification (SIC) system.
Source: U.S. Department of Commerce. (2005, November). Establishment and firm size: 2002 (Including legal form of organization). Retrieved July 6, 2007, from http://www.census.gov/prod/ec02/ec0251sssz.pdf

The IO model thus hypothesizes a positive correlation between concentration and profitability because firms in a more concentrated market possess more market power to influence prices. That is, the higher percentages of concentration result in higher levels of market performance. The first empirical studies to test the IO hypothesis were by Mason's student, Joe S. Bain (1951; 1956), who investigated 42 industries and found that profit growth for the more concentrated industries was 11.8 percent compared to 7.5

percent for less-concentrated industries. Bain's results supported one IO proposition that profitability rises with concentration. Unfortunately, most previous media studies correlated concentration with diversity or quality (Fu, 2003), so little direct evidence was found in media industries. For example, Litman and Bridges (1986) studied 101 largest newspapers in 78 cities and found inconclusive results between concentration and journalistic performance. Until recently, scholars such as Van der Wurff (2005) studied business magazines in the Netherlands and found that competition reduced prices and diversity, whereas concentration increased prices.

Product differentiation

The degree of product differentiation refers to the extent to which buyers differentiate, distinguish, or have specific preferences among the competition outputs of the various sellers established in an industry (Bain, 1959). There are many sources of product differentiation, such as the quality or design of products, the reputation of sellers, and the sales promotion activities of marketers. For instance, cable news networks (e.g., CNN and Fox) were found to present the so-called "objective news" differently (Huang, 2005). According to a Pew survey, Republican viewers were more likely to watch Fox News, whereas Democratic viewers preferred CNN (Pew Research Center, 2004). As a result of the product differentiation, these cable news networks are able to obtain significantly different shares of the market.

In technical terms, product differentiation measures the degree of market responsiveness, or elasticity, of the various outputs in the industry. Elasticity is used to quantify the response in a dependent variable when an independent variable changes (Equation 1). Economists use elasticity to measure the relationship between price and quantity. For example, if the price of a newspaper rises 10 percent, the circulation number is expected to fall based on the law of demand, which implies that price and quantity are

inversely related. Thus, a product is considered inelastic when the quantity of demand does not change as much as the price (i.e., the ratio of quantity to price is less than absolute value 1); elastic products are those with very similar substitutes so the ratio of quantity to price would be greater than absolute value 1.

$$\text{Elasticity} = \frac{\%\Delta \textit{ Dependent Variable}}{\%\Delta \textit{ Independent Variable}} \quad (1)$$

Barriers to entry

Barriers to entry, a way of preventing potential entrants from entering a market, also help established firms to maintain high levels of profits. Barriers usually include (a) economic barriers such as absolute cost advantage or economies of scale, and (b) regulatory barriers such as public policies or government licenses (Hoskins et al., 2004). If the barrier to entry is low, established firms only can slightly exceed a competitive selling price without inducing new entrants into a market, whereas if the barrier to entry is very high, established firms perhaps can attain a fully monopolistic price without inducing any new entry. For example, large economies of scale can prevent a new entrant from quickly achieving the high output and sales necessary to compete effectively. A real-world example is telecommunication carriers that traditionally are viewed as natural monopolies and thus subject to public regulation.

According to Carlton and Perloff (2005), barriers to entry probably are a better measure of industry structure than concentration because they are exogenous[4] to the performance of an industry. Empirically, Fraumeni and Jorgenson (1980) found that there

4. If measures of structure are determined by profitability, the measures are said to be endogenously determined. Exogenous means that the measures of structure are determined before profitability and that profitability does not affect the measures.

are persistent differences across industries in the levels of risk reflected in the level of profits. That is, the higher the barriers, the higher the profitability because new entrants must surmount the barriers before entering into competition in a particular industry.

Economies of scope

In addition to the previous three dimensions of industry structure, scope economies, sometimes known as vertical integration or diversification, are worth mentioning where the online news industry is concerned. The reason is that the effect of scope economies is especially important when "technologically complementary productive processes can be brought together in a single plant" (Bain, 1959, p. 156) so that the production of one product lowers the production cost of another. Consider that a book published by Harper & Row could be excerpted in Murdoch newspapers and magazines, recast as a Twentieth Century Fox film, done again as a television program for the Fox network, and then syndicated around the world (Gomery, 1989). The process exemplifies well the economies of scope.

By and large, scope economies result from a multi-product firm that shares inputs and spreads the cost among products so they may expect a higher level of profit. For example, the newspaper-Internet or television-Internet convergence in a single newsroom permits considerable sharing of the cost in terms of newsgathering (Quinn, 2005). Once the cost is lowered and other things are equal, the profit is increased. However, empirical results are inconclusive. For example, Wernerfelt and Montgomery (1988) found that narrowly diversified firms did better in profits than widely diversified firms. Similarly, Jung and Chan-Olmsted (2005) examined the top 26 media firms from 1991 to 2002 and indicated that related diversification contributed to better financial performance, whereas unrelated diversification might decrease performance. Note that the related diversification was defined by the Standard Industry Code (SIC): Two businesses are considered related

if they share the same two-digit SIC and vice versa. For example, the integration of two SIC27 businesses (e.g., newspaper and magazines) were treated as related, whereas the integration of SIC48 businesses (e.g., TV station) and SIC27 businesses (e.g., newspaper) were treated as unrelated.

The resource-based view (RBV) model

To study firm behavior, primary emphasis is placed on the resource-based view of the firm, rather than on other alternative approaches such as industrial economics, organizational management, culture, creativity, and leadership. There are at least two reasons for this focus: (a) IO and RBV models both intend to explain or predict market performance, meaning it is valid to compare the two; (b) RBV, emphasizing a firm's internal resources, was one of the earliest models to contrast with external or environmental models such as IO.

Inception

Beginning in the mid-1980s, strategic management scholars started investigating an inside-out, resource-based model that emphasizes the critical value of the internal resources of a firm and the firm's capabilities to manage them. Wernerfelt (1984) coined the term "a resource-based view of the firm" (p. 171) and attempted to analyze firms from the resource side rather than from the product side. Two important assumptions were made by RBV scholars: Firms within an industry may be heterogeneous, and resources may not be perfectly mobile across firms (Barney, 1991; Hunt & Morgan, 1995). First, heterogeneity entails that no competing firms are identical in the resources they control. The assumption of firm heterogeneity is supported by some empirical data: e.g., Rumelt (1991) found that business units differ far more within than across industries. Second, resource immobility implies that some firms' resources are not commonly, easily,

or readily exchanged on the market. In the United States, for example, under current patent law, the term of the patent is 20 years from the earliest claimed filing date, so resource immobility is true with regard to patent possession.

Based on the assumptions, Barney (1991) was the first scholar to identify four specific attributes of a firm's resources: value, rareness, inimitability, and non-substitutability. By implication, not all attributes are resources; a firm's resources (e.g., trust or reputation) must be firm-specific and difficult to create, buy, imitate, and substitute. A valuable resource is one that enables the firm to implement strategies that improve its efficiency; rare resources are those that are not possessed by a large number of other firms; resource inimitability is the ability of a firm to exploit certain resources, depending on its unique historical conditions; and non-substitutable resources are those that other firms possess no equivalents to help them implement the same strategies (Capron & Hulland, 1999).

So far, this section has discussed the RBV model only at the concept level. But RBV scholars are more interested in relationships (i.e., the impact those resources have in creating sustained competitive advantages) (Barney, 1991) or superior return on capital (Amit & Schoemaker, 1993; Wernerfelt, 1984). The supposition is that marshalling a set of complementary and specialized resources that are valuable, rare, inimitable, and non-substitutable may enable a firm to craft competitive strategies and then earn higher-than-normal returns. In other words, each firm is a collection of unique resources that provide the foundation for its strategy and lead to the differences in its performance.

The supposition was supported by several empirical studies. Song, Di Benedetto, and Mason (2007) used multiple data collections from 216 firms and discovered that the relationships among four firm resources (i.e., technology, information technology, market-linking, and marketing capabilities) and ultimate profit performance were

significant. As far back as 1995, Miller and Shamsie operationally defined and empirically tested the RBV model in a study of the major U.S. film studios from 1936 to 1965. Specifically, they hypothesized that (a) property-based resources are likely to contribute most to market performance in stable and predictable settings, whereas (b) knowledge-based resources are of greatest utility in uncertain environments (Miller & Shamsie, 1995, 1996). To establish the robustness of such categorization, property-based resources and knowledge-based resources were sub-classified into discrete or systematic. Discrete resources stand alone and have value independent of their organizational contexts; systematic resources have value because their components are part of an organization. As a result, they found that property-based resources (e.g., long-term contracts for stars, studio plant, and equipment) helped financial performance in the stable, predictable environment of 1936–1950, whereas knowledge-based resources (e.g., creative and technical skills, the number of Academy Awards) boosted financial performance in the more uncertain post-television environment (1951–1965). Each type of these resources is discussed in more detail below.

Property-based resources

Property-based resources are physical capital (Williamson, 1975) protected by property rights, such as contracts, deeds of ownership, or patents. These resources tend to be products of contracts or investments and may monopolize factors of production, embody exclusive rights to a process or technology, or tie up channels of distribution (Miller & Shamsie, 1995). Most competitors may know the value of a rival's property-based resources but they lack either the legal right or the historical endowment to imitate them successfully.

In terms of the two types of property-based resources, discrete property-based resources are those that are legally protected, such as patents and exclusive contracts,

whereas systematic property-based resources are historical endowments such as first-mover advantages and complementarity of system parts (Miller & Shamsie, 1996; Wernerfelt, 1984). In terms of property rights, more and more media companies develop quality-assurance, data-conversion, or workflow solution patents for the graphic arts, publishing, and digital multimedia industries, which is an example of creating property-based resources. In addition, one of the most famous exemplars of first-mover advantage as a basis for corporate strategy is the Japanese electronics maker Sony. Sony not only built its strategy but its entire corporate philosophy around founder Ibuka's idea of "doing things that no one else is willing to do," which is considered one of the cornerstones of Sony's rapid growth and continued success (Pearson Education, 2007).

Knowledge-based resources

Unlike property-based resources, knowledge-based resources are intangible know-how and skills protected by knowledge barriers. These resources previously were called by different names by different scholars: human capital (Becker, 1964), organizational capital (Tomer, 1987), or information-based capabilities (Amit & Schoemaker, 1993). Knowledge-base resources are hard for competitors to imitate because they are subtle and difficult to discern. These resources often take the form of particular skills: technical, creative, or collaborative. For example, some firms have a division of research and development (R&D) that regularly develops and markets competitive new products; others have collaborative or integrative experts that help employees work and learn together effectively.

With regard to the two types of knowledge-based resources, discrete knowledge-based resources include technical, creative, and functional skills, whereas systematic knowledge-based resources may contain "integrative or coordinative skills required for multidisciplinary teamwork" (Miller & Shamsie, 1996, p. 527). Discrete and systematic

knowledge-based resources may be valuable because they are subject to uncertain imitability (Lippman & Rumelt, 1982) or causal ambiguity (Barney, 1991). The uncertainty or ambiguity often comes from firms that possess these resources and firms that do not possess these resources cannot discern what it is about these skills or teamwork that generate economic returns or customer loyalty. For example, all Google engineers are encouraged to spend 20 percent of their work time (one day per week) on projects that interest them. The cause and effect was not realized until an internal analysis showed that half of the new product launches, such as Google News, Google Suggest, AdSense for Content and Orkut, originated from these independent endeavors (Google, 2007). Ironically, once revealed, these skills or teamwork no longer are a sustained competitive advantage because competing firms can imitate Google by allowing their employees to do the same thing.

Comparison of the IO and RBV models

This paper's key argument is that combining insights from the IO and RBV models is likely to produce added value because both models have found empirical supports in various industries. In this context, a promising, common aim of the two models is their attempt to explain variation in market performance; both models regard performance as an end-result of industry effects or firm effects. However, the respective foci of IO and RBV models differ: In the IO model, different industry structures—traditionally described by means of concentration, barriers to entry, and product differentiation—determine diverse firm behavior and, ultimately, variation in market performance. The RBV model shifts the emphasis from the industry structure that firms compete against to the resources that firms develop to compete in that environment. Thus, RBV suggests that it is firms' internal attributes that drive performance outcomes, in sharp contrast to IO, which argues that industry structure is the principal explanation for

performance.

Comparison of the industry and firm effects

Although the IO and RBV models focus on industry and firm effects, respectively, the relative importance of those effects has not received much empirical attention because of the difficulty in operationalizing the theoretical constructs of structural characteristics of an industry and behavioral characteristics of firms (Mauri & Michaels, 1998). Even those studies that overcome the measurement problems of industry structure and firm behavior reported findings that confirmed the polar perspectives. Table 5 provides a simplified summary of the results from several well-known studies that included industry and firm effects but did not necessarily apply the IO and RBV models (see Bowman & Helfat, 2001, for a thorough review). Table 5 denotes each study by author and year in the top row, and for each study the table reports the dependent variable and the percent of total variance attributed to various effects. Note that the studies also differ in their definitions of industry and firm and utilize different statistical techniques. For example, Wernerfelt and Montgomery used a 2-digit SIC to define an industry; Chang and Singh used 3-digit and 4-digit SIC. Also, Rumelt studied firms at the business unit level; McGahan and Porter studied firms at the business segment level.

Table 5. Previous Studies Comparing Industry and Firm Effects in U.S. Industries (In Percent)

Type of Effects	Schmalensee (1985)	Wernerfelt & Montgomery (1988)	Rumelt (1991)	McGahan & Porter (1997)	Mauri & Michaels (1998)	Chang & Singh (2000)
Industry effects	19.6	19.5	8.3	18.7	5.8–6.2	13.1–15.9
Firm effects	0.6	2.6	46.4	31.7	25.4–36.9	31.9–50.2
Dependent variable	ROA per business	Tobin's q per company	ROA per business	ROA per business	ROA per business	Market share per business

Schmalensee (1985) conducted perhaps the first empirical study, with results indicating dominance of industry effects (accounting for 20 percent of total variance) and almost no firm effects (less than 1 percent) on return on assets per business (see Table 5). On the other extreme, Chang and Singh (2000) found dominance of firm effects (32–50 percent) and some industry effects (13–16 percent) on market share per business. Although recent studies all found that firm effects seemed stronger than industry effects, five of the six studies (except for McGahan and Porter's) reported in Table 5 were conducted in the manufacturing industry within the context of their samples of large business units of large and well-diversified corporations. Therefore, McGahan and Porter (1997) emphasized that the attribution of importance varied by industry because they found that industry effects were stronger than firm effects on profitability in the

wholesale and retail industry, but weaker in the manufacturing industry. Therefore, to infer the economy of one industry from the results of another industry would be premature.

Objective of the study

Theory-wise, this study's objective centers on the relative importance of IO's industry effects and RBV's firm effects on market performance. In other words, which theory or model has stronger explanatory power on market performance? Industry-wise, the objective of this study is to formulate a broad analytical framework setting out guidelines of superior market performance for the online news industry.

ANALYTICAL FRAMEWORK FOR THE PRESENT STUDY

A principal proposition to be made in this study is that market performance may be determined systematically by industry structure and firm behavior. Before proceeding, however, it is necessary to emphasize an essential limitation on the meaning of the statement. Obviously, industry structure and firm behavior are not the sole, sufficient, and complete determinants of the way in which firms perform. For example, governments (e.g., FCC) have several policies, such as subsidies, regulation, price controls, and trade rules, with which industry structure and firm behavior can influence the level of competition or profits in a given industry. According to Bain (1959),

> When we suggest that they [industry structure and firm behavior] may "determine" market performance, the most we can mean is that, given the character of all the other important and perhaps more basic determinants of performance, they [industry structure and firm behavior] "make a difference" in how performance will emerge, or have some systematic influence on it. (pp. 44–45)

That is, numerous other determinants of market performance are treated more or

less as given so that this study can focus on the two theoretical models (IO and RBV) and compare the relative importance of industry and firm effects on performance. With this assumption in mind, this section (a) states hypotheses between market performance and various determinants derived respectively from the IO model and the RBV model, and then (b) asks the research questions to model the overall IO's industry effects, RBV's firm effects, and the relative importance of industry and firm effects on market performance (see Figure 3). The purpose of stating hypotheses for this study is to gain a basic understanding of bivariate relationships between each independent and the dependent variable before multivariate modeling, because a thorough knowledge of the variable interrelationships can aid greatly in specifying and refining the multivariate model as well as provide a reasoned perspective for interpretation of the results (Hair, Black, Babin, Anderson, & Tatham, 2005).

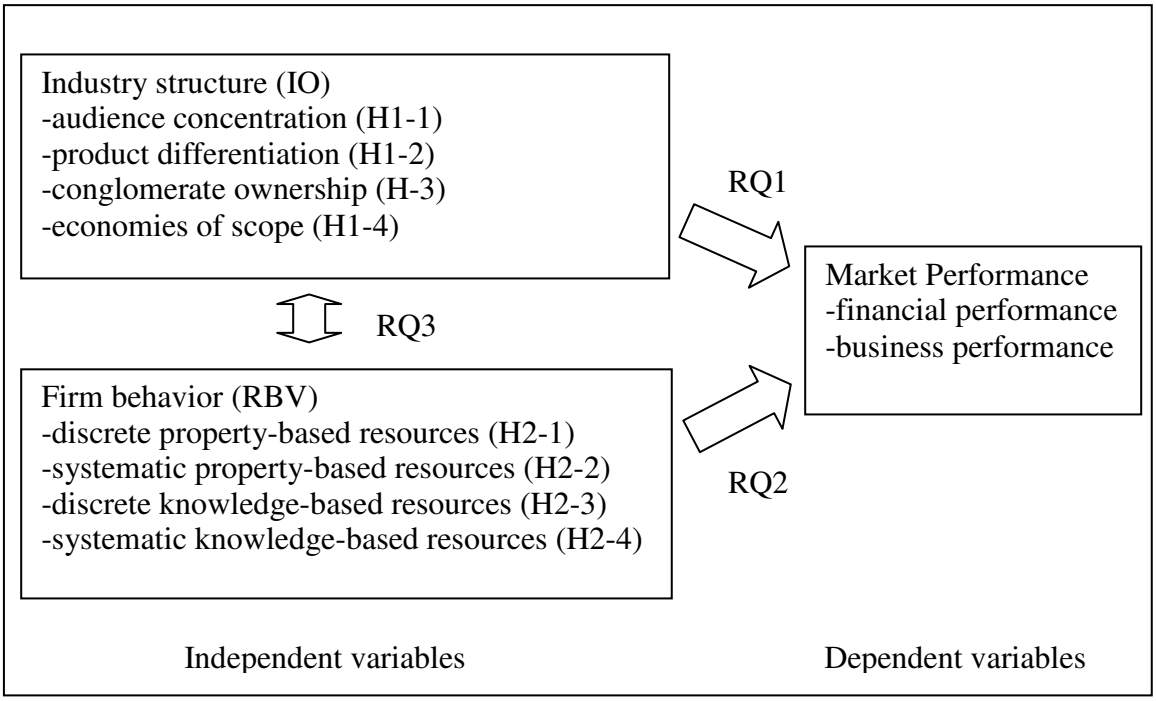

Figure 3. Analytical Framework for a Market Performance Analysis

Hypotheses

Market performance

Although market performance is the ultimate outcome of all firms participating in an industry, this study empirically tested only financial and business performance, for two reasons. One, the criteria and data for evaluating different dimensions of market performance, such as full employment or equity, is macro in nature and beyond the scope of this study, which focuses on one industry. Two, financial and business performance are common operationalization of market performance in empirical research. Venkatraman and Ramanujam's (1986; 1987) two articles, cited by more than 200 articles in the Business Source Complete database, provided an exhaustive coverage of 10 approaches to measuring financial or business performance. As noted earlier, financial performance is the narrower conception of market performance, centering on the use of simple outcome-based financial indicators (such as revenue growth and profitability (Equation 2 & 3)) that are assumed to reflect the fulfillment of the economic goals of a firm; business performance, taking account of financial and business-related measures, is a broader subset of the overall concept of market performance in terms of the scope of coverage in the concept's domain.

$$\text{Revenue growth} = \frac{\text{Revenue} - \text{Revenue}\,(yr\ ago)}{\text{Revenue}\,(yr\ ago)} * 100 \quad (2)$$

$$\text{Profitability} = \frac{\text{Revenue} - Expenses}{\text{Revenue}} * 100 \quad (3)$$

Audience concentration and performance

Concentration is an important indicator of industry structure and can be examined in various ways, such as revenue concentration reviewed earlier. In media industries, revenue and audience concentration frequently are used (Albarran, 2002; Chan-Olmsted, 2005). This study tests audience concentration for two reasons. First, revenue concentration is meaningful only when firms of an industry make differential earnings that correctly reflect their market share. But many online news sites still are exploring different revenue sources while making it difficult to obtain precise accounting records, not to mention the sites' willingness to disclose those numbers. Second, more and more media scholars call for attention to treating audience as a determinant. For example, Ramstad (1997) argued that the main limitation of the IO model was that it ignored buyers directly, only examining them through the performance element. Correspondingly, Chyi and Sylvie (1998) and Chan-Olmsted (2005) suggest that the role of audience in the new media environment might shift from the "effect" of media structure or behavior to the "cause" of it. For example, Chyi and Sylvie (1998) note that "electronic newspapers and other online sites are required to adapt to the inherent traits of the medium and medium users" (p. 16). In a similar vein, Chan-Olmsted (2005) stated that "as technology shifts more control and power to consumers, media strategies and competitive dynamics should be evaluated based on consumer, rather than industry, factors or definition" (p. 174).

However, indicators of audience concentration in a single industry require some adjustment because of the following two reasons. First, conventional CR4/CR8 measures are valid for a cross-industry comparison but this study analyzes only one industry; second, the HHI measure requires data of market share from every single firm in an industry but this study has information only about several hundred news sites. Since

conventional wisdom implies that concentration is related closely to share and size, this study measures concentration through traffic share of a site and market size at the site. Based on the IO's assertion that concentration leads to high prices and high profits, this study hypothesizes:

H1-1: The more audience concentration the news site has, the greater its level of market performance.

Product differentiation and performance

When it comes to differentiation analysis, subscription and advertising prices should be included, owing to the unique feature of media's dual-product markets. To evaluate product differentiation, the study developed a formula to calculate traffic elasticity (Equation 4) for the Internet, the degree to which subscription and advertising prices change in response to Internet traffic change. That is, the traffic elasticity depends on the ratio of the incremental percentage change in subscription and advertising prices with respect to an incremental percentage change in traffic on the Internet. Since traffic and price are related positively, a differentiated site has an absolute ratio greater than 1 and an undifferentiated site has a ratio between 0 and 1. For example, if a news site's traffic increases 10 percent and its subscription and advertising prices during the same period increase 15 percent, the news site's elasticity ratio is 1.5, meaning that the site is differentiated. On the other hand, if a news site's traffic increases 10 percent and prices stay the same, the news site's elasticity ratio is 0, which shows that the site is not differentiated. Since differentiated firms usually create higher profit than homogeneous ones, a high elasticity score is associated with high level of profit.

$$\text{Traffic Elasticity}=\frac{\%\Delta(subscription\ rate + advreti\sin g\ rate)}{\%\Delta traffic}, \quad (4)$$

where $|elasticity| > 1$ as differentiated

$|elasticity| \le 1$ as undifferentiated

H1-2: The more inelastic (differentiated) the site is, the greater its level of market performance.

Conglomerate ownership and performance

Although reviewed earlier, barriers to entry, an important element of the IO model, may not be an appropriate measure for the online news industry because the Internet has no special ownership regulations and the Internet is a lowly concentrated market. The ease of entry includes no licensing requirements or high initial capital requirements, and there is easy access to distribution channels. Chyi and Sylvie (1998) provided a concluding mark toward barriers to entry on the Internet: The regulatory and economic entry barriers to the electronic market appeared low in comparison with other media. Extending that argument, this study suggests a question on conglomerate ownership as a potential barrier when examining Internet media: Whether the ownership of an established news site will place economic barriers to entrants given that online news often is not a free-standing industry but an offshoot of many offline media (e.g., newspapers or broadcasting).

It's likely that conglomerate ownership provides protection for corporation-owned news sites from being whittled away by independent competitors. For example, Chang and Singh (2000) studied 709 public firms in the manufacturing sector from 1981 to 1989 and found that corporate parents actively influence the operations and the success of their subsidiaries. Taking the top three news sites in 2006 for example, Yahoo News, MSNBC, and CNN all are owned by big media corporations (Project for Excellence in Journalism).

The supposition is that the capacity built up by news sites' parent companies may signal a barrier to potential entrants because the new entrants may face competitors' overcapacity and price rivalry upon entering the online news market.

In addition to corporate effects, recent scholarship also found a relationship between type of ownership and financial performance. Publicly owned media usually are required to have higher profits because public companies must react to the short-run expectation of the stock market. Empirically, Lacy and Blanchard (2003) found public newspapers had about 6 percent higher profit margins than private newspapers. In sum, this study hypothesizes the effects of conglomerate ownership on performance as:

H1-3: The larger the parent company, the greater the level of market performance of the news site.

Economies of scope and performance

Although the conceptual definition of scope economies' effects depicts multi-product firms as more profitable, its operational definition is more difficult to capture in media firms. According to Dimmick and Albarran (2005), two reasons for the relative rarity of media research about economies of scope are: (a) data on actual production costs are proprietary and thus difficult to obtain; (b) input costs in media industries such as the cost of a story idea or a news story are hard to calculate. For these reasons, this study borrows Dimmick and Albarran's (2005) "potential" measure of scope economies (PS), which multiplies the number of distinct content businesses (N) in which a firm engages by the number of distribution systems (M) it owns (Equation 5). PS scores range from 0 to any positive numbers, where the larger value represents the higher scope economies. For example, *usatoday.com*'s parent company, Gannett Co., owns three content

businesses (i.e., newspapers, television, and the Internet) and one distribution system (i.e., printing), so Gannett's PS score is 3,[5] but the number makes sense only when comparison is made. As discussed earlier, empirical results did not fully support the IO theoretical model, but for the purpose of theory-testing, a positive relationship between scope economies and performance is hypothesized:

PS=N*M (5)

H1-4: The more diversified the parent company, the greater market performance the news site.

Discrete property-based resources and performance

Discrete property-based resources are protected by U.S. laws, such as copyrights, patents, trademarks, and exclusive contracts. A copyright, registered by the Copyright Office of the Library of Congress, is a form of protection provided to the authors of original works of authorship, including literary, dramatic, musical, artistic, and certain other intellectual works, published and unpublished, whereas patents or trademarks are inventions, words, names, symbols, or devices issued by the United States Patent and Trademark Office. Disney, for example, has international rights to about 853 feature films, 671 cartoon shorts and animated features, and tens of thousands of television production (Chan-Olmsted, 2005). Exclusive talent contracts, functioning as a retention factor, sometimes are required by firms to prevent competitors from being able to benefit from their talents. As discrete property-based resources are protected by law, more such inimitable resources (i.e., copyrights, patents, trademarks, and exclusive contracts) are

5. The proposed index attempts to measure scope economies at the level of the entire firm rather than at the level of products.

assumed to create superior performance:

H2-1: The more discrete property-based resources the site has, the greater the level of market performance.

Systematic property-based resources and performance

Systematic property-based resources can be created by first-mover advantages or complementarity of system parts. The first-mover advantage represents advantage that accrues to the first sites to introduce news to Internet users. Being the first allows companies to acquire superior brand recognition and customer loyalty and to perfect their product or service. Complementarity of system parts means systematic resources should be used "not to substitute for existing assets but rather, to strengthen a system or competence that is already in place" (Capron & Hulland, 1999, p.525). Empirically, Capron and Hulland conducted a survey of 253 acquisitions and their results showed that highly immobile resources such as brands and sales forces significantly influenced overall firm performance. Thus, this study hypothesizes that news sites with more systematic property-based resources (i.e., longer in launch time and use of an existing brand) are more likely to become profitable.

H2-2: The more systematic property-based resources the site has, the greater the level of market performance.

Discrete knowledge-based resources and performance

According to Miller & Shamsie (1996), discrete and systematic knowledge-based

resources are common in the form of technical, functional, and creative skills but differ in whether those skills are independent of each other or part of a network or system. Because discrete knowledge-based resources usually involve specific technical, functional, and creative skills, Chan-Olmsted (2005) used a term "creative expertise" (p. 167) to signify them. For example, competing or pursuing talents in design, production, and marketing is not unusual in many industries because firms can benefit from developing as many of these knowledge resources as possible. When it comes to empirical research, Miller & Shamsie (1996) had used the number of skilled individuals and Academy Awards to represent film studios' discrete knowledge-based resources. This study replicates the measures and tests a composite hypothesis of the discrete knowledge-based resources stated as:

> H2-3: The more discrete knowledge-based resources the site has, the greater the level of market performance.

Systematic knowledge-based resources and performance

Given that systematic knowledge-based resources may contain integrative or coordinative skills required for multidisciplinary teamwork, they may be reflected, albeit imperfectly, by a firm's teamwork in R&D or its ability to team, coordinate, or integrate multiple platforms. If some firms are good at integrating and coordinating technical, functional, and creative expertise, they will gain competitive advantage from the way skills from several domains complement each other in a team. For example, Menguc and Barker (2005) studied sales managers in 102 large Canadian organizations and found that collaborative skills were related directly to their sales performance. To empirically examine the collaborative teamwork, previous studies have used a firm's integration

ability (Liu & Chan-Olmsted, 2003) and the cost of long-term projects of a firm (Miller & Shamsie, 1996) as indicators. Theoretically, news sites that master creating systematic knowledge-based resources (i.e., more R&D work and greater level of convergence) are more likely to become profitable.

H2-4: The more systematic knowledge-based resources the site has, the greater the level of market performance.

Research questions

The hypotheses stated above have specified only bivariate relationships between each independent and dependent variable. But the purpose of the research questions is to answer whether the IO model or the RVB model can explain market performance better. Although more previous studies found that industry effects accounted for a smaller portion of profit variance than did firm effects (e.g., Chang & Singh, 2000; Mauri & Michaels, 1998; Rumelt, 1991; Schmalensee, 1985), the studies were conducted in manufacturing, an industry different from the media, which have been known for participating in dual markets: the information market and the advertising market. Following McGahan and Porter's (1997) conclusion that the relative importance of the industry and firm effects differed substantially across industries, one cannot know the influence of industry and firm effects on market performance in the online news industry until someone empirically tests it. For this reason, there is no prior hypothesis about the direction and the strength of industry and firm effects on market performance. The following research questions are asked.

Industry effects

Industry effects refer to attributes of an industry that produce differential performance. The IO's industry effects that characterize market performance are determined primarily by the membership of an industry and are sustained through various indicators, such as concentration, product differentiation, and barriers to entry. In this perspective, the structural elements of an industry lead its members to act and perform accordingly. Thus, this study attempts to know the extent of industry effects (i.e., audience concentration, product differentiation, conglomerate ownership, and economies of scope) related to market performance with all industry variables considered simultaneously.

RQ1: How does industry structure relate to market performance?

Firm effects

Firm effects capture the unique firm characteristics that influence the variance in performance. The RBV model suggests that the key differences in performance levels among competitors within an industry lie in the existence of unique firm characteristics capable of producing resources that are difficult to imitate. Similar to the way industry effects were examined, this study attempts to know the extent to which firm effects (i.e., discrete/systematic and property-based/knowledge-based resources) relate to market performance when all firm variables are entered in one regression model.

RQ2: How does firm behavior relate to market performance?

Relative importance

Ultimately, the objective of this study is to understand the relative importance of IO's industry and RBV's firm effects on market performance in the online news industry. By understanding the relative importance, this study also looks for complementarity of the two schools of thoughts: Whether the industry effects coexist, rather than conflict, with firm effects within the same industry. To assess the relative importance, all industry and firm variables were first grouped into two blocks and then entered hierarchically into a regression equation.

RQ3: What is the relative importance of industry effects and firm effects on market performance?

Chapter 3: Methods

This chapter details the procedures by which this study was conducted. It (a) addresses the scope of the study by defining the online news industry, (b) introduces a multi-method approach, including survey and secondary data analysis, (c) identifies the measures of market performance, industry structure, and firm behavior, and (d) selects appropriate statistics for this study.

SCOPE OF THE STUDY

Defining the online news industry

Since online news is of concern in this study, this study defined the online news industry as a group of U.S.-based Web sites producing news or editorial content. According to Picard (1989), "Defining a market [or industry] involves specifying the good/service market involved and combining that description with a specific geographic market description" (p. 17). In terms of specifying a product market, Compaine (2000a) stated, "There is the need for broadened product market definitions for the media industry, transcending the traditional boundaries of standard industry code" (p. 210), because he argued that in certain circumstances newspapers, television stations, and radio stations compete and therefore should be included in the same product market. Indeed, traditional standard industry code (i.e., SIC) divides content suppliers into publishing industries (e.g., SIC 2711) and broadcasting industries (e.g., SIC 4833), but the "Internet Publishing and Broadcasting" industries (i.e., NAICS 516) were not created until 2002. The latter industry classification finally reflected the unique combination of text, audio, video, and interactive features in informational or cultural products on the Internet. Therefore, the logic of the new Internet classification, which includes all forms of media in one category,

was adopted in this study. Five types of news sites were included: Internet-only sites (e.g., *news.yahoo.com* or *news.google.com*); national sites (e.g., *usatoday.com* or *cnn.com)*; news service sites (e.g., ap.org or thirdage.com); local newspaper sites (e.g., *statesman.com* or *boston.com*); and local broadcast sites (e.g., *kvue.com* or *ny1.com*).

With regard to geographic market specification, this study treated the whole nation as a market because news sites nowadays compete with one another for audiences with blurring geographic boundaries. For example, a Madison, Wisconsin, native living in New York can reach the *Wisconsin State Journal*'s or WKOW's Web sites as readily as the sites of *The New York Times* or WNBC. Chyi and Sylvie (1998) recognized the formation of dual geographic markets for Internet media. They found evidence from empirical analysis of 136 online newspapers and confirmed that a substantial long-distance market exists outside the print edition's circulation area (Sylvie & Chyi, in press).

The product and geographic definition of the online news industry (i.e., the online news industry is a group of U.S.-based Web sites producing daily news or editorial content) is unique because quite a few previous studies of online news focused on either one medium or one level (i.e., local or national). But this study adopts the criterion of market definition to study news web sites of different media affiliations and across the nation.

A MULTI-METHOD APPROACH

After a review of previous studies asking similar research questions, it's not a coincidence that most studies were conducted in manufacturing industries. Manufacturing industries had the largest number of business units, segments, corporations, sub-industries (McGahan & Porter, 1997, p.27), and, most importantly, complete databases (e.g., Compustat, Federal Trade Commission data, and Trinet). Although figures such as revenue and profit in traditional media companies (e.g., New York Times Co. or

Washington Post Co.) are accessible from U.S. Securities and Exchange Commission (SEC) filings and various industry reports, figures specific to the Internet media are difficult to obtain. The difficulty results from the fact that most news sites either are affiliates of traditional media or branches of Internet-only companies, so their financial statements usually are combined with either their affiliations or other online sites. For example, *cnn.com* is a unit of Cable News Network, whereas *abc.com* is overseen by Walt Disney Internet Group rather than ABC Inc., so business information is not listed independently. Since it was difficult to obtain each news site's business information in a top-down fashion (i.e., from its parent company), a business unit (i.e., a news site), rather than a media company, was chosen as the unit of analysis in this study.

In addition, this study chose a multi-method approach to collect data: survey and secondary data analysis (e.g., data collected from sources external to the target firms) (see Table 6). Specifically, the study (a) surveyed managers of online news sites using a Web-based questionnaire, (b) collected news sites' traffic data from a third-party company, Nielsen's NetRatings, (c) borrowed Nielen Media Research's DMA index for market-size rankings, and (d) consulted industry reports such as Hoovers, Compustat, and Edgar for parent company information. The multi-method approach of collecting data is detailed below.

Table 6. A Multi-method Approach

Method	Data source
Survey	Web-based questionnaire
Secondary Data Analysis	Nielsen's NetRatings
	Nielsen Media Research
	Hoovers, Compustat, Edgar

A Web-based survey

The primary method employed in this study is a national cross-sectional survey of Web site managers and beyond[6] responsible for site management. Although a survey chiefly is used to study people, it can be used to study a phenomenon in which people serve as informants regarding the phenomenon (Babbie, 1998). Note that informants are people whose knowledge of a cultural scene proves to be valuable to achieve research objectives. Since business data of news sites are unavailable to the public, requesting them from news sites' informants (e.g., Web editors or Web general managers) provides an alternative. Also, surveys can be used effectively to identify and differentiate the perceptions of a large number of respondents without being unduly intrusive. However, a cross-sectional survey has some limitations: First, causal inferences cannot be made; second, results reflect the perceptions of respondents at only one point in time.

There are three common modes of administering a large-scale survey to a sample of respondents: telephone, mail, or e-mail (Poindexter & McCombs, 2000). This study chose e-mails containing a URL address as the major survey mode because Web-based or

6. That is, one respondent was selected in each news site, but the identifying process started from the position of Web site coordinator, editor, manager, or general manager, to any higher position who also may supervise the site.

e-mail surveys offer many advantages, such as rapid surveying, large samples, and little cost (Schaefer & Dillman, 1998). However, an e-mail survey mode also has weaknesses: First, e-mail surveys may not reach people who are infrequent or nonusers of e-mails; second, e-mail surveys often have no advance mail notification and thus have a lower response rate than mail surveys (Kaplowitz & Hadlock, 2004), usually lower than that of the telephone (Poindexter & McCombs, 2000). Overall, a Web-based survey is appropriate for this study in that news sites' informants are supposed to be regular e-mail users and a telephone reminder discussed later is used to increase response rate.

Once the survey mode was decided, eight stages were involved in the survey process:

Stage 1: Survey list

The first stage was to obtain an e-mail list of respondents in news sites. The *Bacon's Internet Media Directory*,[7] well-known in the industry, was selected to compile the e-mail list. Acknowledging that the number of news sites changes daily, no complete list exists so this study used the directory as a sampling frame. To meet various requirements for variables under study, this study examined only U.S. media sites cross-listed in the 2006 and 2007 editions of *Bacon's Internet Media Directory* that had at least 1,000 unique users per month. However, this study found 446 news sites no longer listed in the 2007 edition, so a close examination of the unlisted sites found most of them were still operating on the Internet but no longer generated enough unique users per month for Nielsen's NetRatings to report in the directory. As a result, the sampling frame included 720 media sites (see Table 7). The final list included 5 portal sites,[8] 24 national print and

7. *Bacon's Internet Media Directory* provides access to detailed information about more than 10,000 Internet news sites, organized by media type, geography, and subject matter. The directory invites media sites to submit their up-to-date information online in order to include as many media sites as possible.
8. They are google.com, about.com, aol.com, myway.com, and yahoo.com.

broadcast news sites, 23 news service sites, 258 local broadcast sites, and 410 local newspaper sites. The list covered all national print, television, radio, and cable sites (e.g., *usatoday.com*, *abcnews.com*, *npr.org*, *cnn.com*) and major local sites with at least 1,000 unique users per month. There were two reasons for the cutoff point of 1,000: (a) Nielsen's NetRatings cannot report data for numerous "long-tail" niches and hyper-local sites whose traffic does not rise above the rankings' margins of error, and (b) the assumption that market performance depends heavily on whether a site is able to generate traffic to secure its business.

Table 7. The Breakdown of Sampling Frames [a]

Type of Sites	News Sites in 2005	News Sites in 2006	Cross-Listed
Internet-only sites	5	5	5
National sites	24	25	24
News service sites	25	59	23
Local broadcast sites	259	1167	258
Local newspaper sites	853	595	410
Total	1166	1851	720

[a] The sites include only U.S. media sites listed in the *Bacon's Internet Media Directory* with at least 1,000 unique users per month. If a site no longer has traffic data provided by Nielsen's NetRatings, it is not selected.

Stage 2: Sample size

The second stage involved a decision about the size of the sample. Sample size has a direct impact on the appropriateness and the power of a statistic. Neither small nor large samples are preferred (Babbie, 1998): Small samples (e.g., 30 cases) can detect

some degree of certainty only when a strong relationship is presented; large samples of 1,000 cases or more make almost any relationship statistically significant. Taking multiple regression for example, a minimum case-independent variable ratio is 5-to-1 and a preferred ratio is 20-to-1 (Hair et al., 2005).

Response rate also affects sampling. Given that the average top management survey response rates are in the range of 15–22 percent (Dillman, 2007; Menon, Bharadwaj, Adidam, & Edison, 1999), this study had to randomly sample five to seven times the sample size. For instance, to obtain a sample size of 200, which allows at least 10 independent variables entered in the regression equation simultaneously, this study "ideally" demanded a sample of 1,000 to 1,333 news sites. Since the ideal size already exceeded the total number of the final sampling frame (i.e., 720), a census, rather than a random sample, was conducted.

Stage 3: Questionnaire design

In terms of questionnaire design (see Appendix A), this study faced two challenges: levels of measurement and sensitive questions. The first challenge came from certain quantitative analysis techniques requiring variables that meet certain minimum levels of measurement. Since a multiple regression statistic, which requires independent variables to be continuous[9] or dichotomous and the dependent variable to be continuous, is ideal for the present study, this study avoided collecting nominal data and adopted higher levels of measurement (e.g., ordinal, interval, and ratio) wherever possible. For instance, numbers were requested directly about bookkeeping data such as subscription fees, cost per thousand (CPM) rate, and the size of Web staff:

9. As a rule of thumb, interval and ratio data are continuous; however, if we treat ordinal data as continuous, a cautionary note should be provided when the data are presented.

Q5. Approximately how many full-time employees work mainly for your site? Please write your answer here:

The second challenge was that respondents usually were sensitive about answering questions about financial performance, just as people are about divulging their age or income. This study requested percentages, instead of actual numbers, to ease the sensitivity. For example, respondents were asked the percentage of their news site's profitability and choices via an ordinal scale in 11 intervals with a 10 percent range, two categories of plus and minus more than 50 percent, and one opt-out category as "uncertain" were provided:

Q14-1. What was your site's percentage of profitability in fiscal 2006? Please choose **only one** of the following:		
☐ More than 50%	☐ 1-10%	☐ Minus 31-40%
☐ 41-50%	☐ Break even	☐ Minus 41-50%
☐ 31-40%	☐ Minus 1-10%	☐ Minus more than 50%
☐ 21-30%	☐ Minus 11-20%	☐ Uncertain
☐ 11-20%	☐ Minus 21-30%	

This was done to reduce the chance of memory error while retaining equality of intervals as much as possible so that correlation and regression analysis could be used (Lacy & Blanchard, 2003). In addition, Likert-type perceptual relative assessments were asked to in order to complement the possible low item response rate of the percentage questions

about financial performance. A five-point Likert scale, ranging from “strongly agree” to “strongly disagree,” with the neutral point indicating “neither agree nor disagree,” was employed:

Q18. To the best of your knowledge, do you agree that your site performs much better than your major competitors in the following areas? Please choose the appropriate response for each item:					
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Revenue growth	☐	☐	☐	☐	☐
Profitability	☐	☐	☐	☐	☐
Market share	☐	☐	☐	☐	☐
Content quality	☐	☐	☐	☐	☐

It is worth noting that there were three major reasons for using the perceptual relative assessment as a complement. One, using cost data of online news sites, sometimes is unpredictable: Since most news sites are offshoots of traditional media, from which they borrow resources, a correct number of a news site’s cost data may not be attainable, and thus a correct range of profitability may not be estimated. Two, several studies found an informant approach (in which key managers are asked to provide business information about their firms) as valid because perceptual data from top managers were found to correlate strongly with data collected from internal accounting records (Dess & Robinson JR., 1984) or from external sources, such as annual reports, 10K reports, Business Week Scorecard (Venkatraman & Ramanujam, 1987). Three, the

questions about relative performance in relation to major competitors, used in various studies (e.g., Homburg & Pflesser, 2000; Kaplowitz & Hadlock, 2004; Kim, Cavusgil, & Calantone, 2006; Zou & Cavusgil, 2002), were found to generate more objective assessment of an informant's company performance than did questions about absolute performance.

Stage 4: IRB approval

Before any human contacts were made, the author applied for the university's Institutional Review Board's (IRB) approval. According to IRB protocol, survey research is eligible for exempt review if it consists only of observational research whereby the researchers do not participate in the activities being observed. Since this study is a Web-based survey that does not involve any recordings, risks, children, or FDA regulation, an exempt review was processed and approved in November 2006 (see Appendix B). A written cover letter that described voluntary participation and assured respondents' confidentiality was sent with the survey questionnaire to the surveyed participants (see the Second Contact in Appendix C). The records of this study were stored securely and kept confidential. All publications will exclude any information that might make it possible to identify any participant as a subject.

Stage5: Questionnaire pretest

A three-step pretest was performed at this stage to ascertain if respondents found the survey questions to be clear, understandable, and answerable. First, the dissertation committee reviewed the survey and ensured that the questions were theoretically sound. At this step, some nominal questions were added, such as the type of affiliation (Q2), the type of ownership (Q14), the degree of convergence (Q2-1), and the use of an existing brand name (Q3) (see Appendix A).

Second, the questionnaire was sent to five industry experts who dealt with online news sites on a daily basis to check clarity and answerability. The experts were *Dallas Morning News*'s Interactive Vice President Fran Wills, *Austin American Statesman*'s Web General Manager Jim Debth, *San Antonio Express-News*' Web General Manager Judy Weber, News 8 Austin's Web Director Todd Callahan, and KVUE's Sales Director Jill Fredericks. Based on their comments, the questions of copyrights, patents, trademarks, and exclusive contracts were modified from open-ended questions to yes-no questions (Q6 and Q7) because some experts expressed difficulty reporting a correct number.

Third, the study randomly selected 27 news sites from the e-mail list compiled for the Web-based national survey and pretested people at different positions of the 27 sites in order to find out whether a business survey was doable in the online news industry and which position had the best knowledge of the survey questions. 27 pretest questionnaires with a cover letter that explained the research objective were e-mailed April 16, 2007. A follow-up letter that encouraged potential respondents to cooperate was sent one week later. The two-contact, e-mail-only pretest generated 6 responses, yielding a 22 percent response rate, which showed a positive sign of this survey's feasibility. Also, the pretest showed that people who were Web editors or Web general managers in newspaper-affiliated sites and station's general managers in broadcast-affiliated sties were more likely to complete the survey.

Stage 6: A six-contact survey

Multiple contacts are essential to maximize response to mail or e-mail surveys (Poindexter & McCombs, 2000). However, Dillman (2007) suggested that the stimuli (or content in mail/e-mail surveys) that researchers use to solicit participation should not be the same as those received earlier. As a rule of thumb, the later contacts need to be varied in an effort to increase their effectiveness with non-respondents. Appendix C shows that

each contact had a different look and feel.

A six-contact survey to the 720 respondents was launched May 14, 2007, and ended June 8, 2007 (see Table 8). The first contact was a pre-notice letter to provide a positive and timely notice that the recipient would be receiving a request to help with an important study (Schaefer & Dillman, 1998). Two days after the pre-notice, the second contact, containing a personalized cover letter, a Web-based questionnaire link, and a return e-mail address, was sent. After one week or so, a third contact written to jog memories and rearrange priorities was e-mailed to all those who hadn't responded to the questionnaire. In the meantime, the response rate with three contacts only was somewhere around 15 percent.

Table 8. A Mix-mode Survey

Contact	Type	Mode	Date	Cumulative response rate (%)
1	Pre-notice	E-mail	05/14/2007	0
2	Questionnaire	E-mail	05/16/2007	8.9
3	First reminder	E-mail	05/22/2007	15.4
4	Second reminder	Telephone + E-mail	05/23/2007–06/04/2007	23.2
5	Supervisor's reminder	E-mail	06/05/2007	28.6
6	Last day reminder	E-mail	06/08/2007	34.6

Notably, the present study chose a telephone reminder as the fourth contact, followed immediately by a replacement e-mail because different modes of surveys often

produce different results, as responses to different survey modes are not compatible. However, in some situations it is impossible to avoid using multiple modes to conduct a particular survey. For example, telephone surveys may omit people without home lines; e-mail surveys may not reach people who are infrequent or non-users of e-mail. To avoid the potential measurement differences and also aid the coverage and response quality of the survey effort, past research suggested that introducing a second survey mode as a reminder was possible (Dillman, 2007; Roscoe, Lang, & Sheth, 1975). As a result of the mixed-mode technique, the response rate increased from 15 percent to 23 percent (see Table 8).

The fifth contact, a supervisor's reminder, was experimental and rewarding. Since previous research on the impact of signatories demonstrated that surveys from governmental and academic organizations tend to have higher response rates (Fox, Crask, & Kim, 1988; S. R. Porter & Whitcomb, 2003), the dissertation's supervisor, Dr. George Sylvie, also the associate director of School of Journalism, offered to write a reminder letter for me with his signature on the letter to increase the legitimacy of the survey. Consequently, the response rate increased another 5 percentage points (see Table 8).

Stage 7: Survey response rate

Of the 720 respondents e-mailed, 208 completed the survey during the four-week period. However, there were 119 bounce-backs.[10] The number was not realized until almost the end of the survey period because the PHP survey system provided by the UT College of Communication didn't keep bounce-back records. As a final resort, the study sent out a blind carbon-copy (Bcc), mass e-mail to the 720 respondents May 26, 2007, using a Gmail account that has a function of detecting bounce-backs to generate the number. Although the number of bounce-backs in the PHP system might not be the same

10, This happens when the recipient e-mail addresses no longer are functioning.

as that generated by Gmail because PHP sent out personalized emails that might bypass some corporate firewalls, using Gmail is one of the feasible remedies to detect bounce-backs. A decision not to substitute the undeliverable e-mails was made under two conditions. First, according to *undeliverablemail.com*, an average e-mail list has about 15 percent undeliverable e-mails, so the number of 119 was not abnormal. Second, the bounce-back information was obtained at a later stage, when the response rate had reached 25 percent, which was above the average of other business surveys (i.e., 15-22 percent). In computing response rate, the accepted practice is to omit all questionnaires that could not be delivered (Tripathi, 2001). Accordingly, there were 208 respondents to the survey, yielding a final response rate of 34.6 percent (208 of 601) without redistribution.

Stage 8: Assessment of nonresponse bias

Of the 208 responses, there was one Internet-only site, 5 news service sites, 6 national sites, 70 local broadcast sites, and 126 local newspaper sites (see Table 9). Since the response rate seldom reaches 100 percent, Babbie (1990) stated that "a demonstrated lack of response bias is far more important than a high response rate" (p. 182). So, the study assessed the potential nonresponse bias by comparing the responding and nonresponding news sites, as well as the early and late respondents. In the former comparison between the responding and nonresponding sites, there was no significance difference in terms of news site's media affiliation types: A Chi-square test was insignificant (see Table 9). In the latter comparison, the basic rationale is that "…subjects who respond less readily are more like non-respondents. 'Less readily' has been defined as answering later, or as requiring more prodding to answer" (Armstrong & Overton, 1977, p.397). the study thus compared the news sites that responded to the survey within one week (before the telephone reminder) with those that responded in the later three

weeks in terms of all the variables of industry structure, firm behavior, and market performance. Using t-tests, the study found no significant difference at the .05 level except for one variable: The earlier respondents had more discrete property-based resources than the later ones ($t=2.114$, $p<.05$). Overall, these findings provide reasonable evidence that nonresponse bias was not a problem in the sample.

Table 9. Assessment of Nonresponse Bias

	Respondents		Non-respondents	
Type of Sites	frequency	valid percent	frequency	valid percent
Internet-only sites	1	.5	4	.8
News service sites	5	2.4	18	3.5
National sites	6	2.9	18	3.5
Local broadcast sites	70	33.7	188	36.7
Local newspaper sites	126	60.6	284	55.5
Total	208	100.0	512	100.0

$\chi^2 = 2.007$, d.f. = 4, $p > .05$ (.735)

Secondary data analysis

Third-party rating companies

Discovering accurate and up-to-date traffic data for news Web sites is not easy. Measurement of traffic generated from Web logs could be underestimated or overestimated in many circumstances[11] (Werner, 2002). So, the most useful traffic

11. Underestimation may result from a special server called "proxy," which stores frequently requested files for users and prevents original Web sites from collecting complete log files. On the other hand, overestimation may come from non-human (e.g., robot/spider) activities that hardly can be distinguished

reports still are panel samples provided by third-party metrics firms. However, the study researched into several companies (including non-profit and commercial) specializing in online audience measurement and found that free data were not comprehensive and that comprehensive data were costly and publicly inaccessible.

In the United States, the non-profit Audit Bureau of Circulation (ABC) has provided traditional circulation auditing for newspapers and magazines since 1914 and applied the same approach to online auditing (also known as ABCi) for 10 years. Instead of projecting audience activity, ABCi uses a census-based method and requires Internet publishers to submit their log files directly to ABC. Although ABCi demands transparency and accountability, its coverage of U.S. news Web sites is far from complete. Thanks to ABC's generosity, the study obtained free access to its electronic database, but as of the end of 2006, ABCi only provided data on 19 media Web sites.

Among commercial companies, one of the established providers of media rates and data is the Standard Rate and Data Service (SRDS). It lists advertising rates, editorial or programming content, circulation, and other basic information about various advertising media. SRDS consists of separate volumes for different media industries such as radio, television, newspapers, interactive media, and so on. Each volume of interactive media is organized by content. Under the category of Journalism and Publishing in the volume of Interactive Advertising Source (Standard Rate and Data Service, 2006), there were only 40 news sites, some of which overlapped with ABCi's data—more than the coverage of ABCi, but still incomplete.

ComScore's Media Metrix and Nielsen's NetRatings, specializing in audience traffic and providing behavioral statistics of people who access the Internet, are the industry's leading third-party ratings firms. Their services deliver comprehensive

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from human (e.g., Web surfers) actions.

audience ratings, including clicks, page impressions, unique users, and so on. However, access to those data is costly. both companies' public relations departments were contacted, but their responses cite the volume of academic requests in rejecting access to data (personal communication, December 19, 2006).

In terms of availability, several Web sites (e.g., Alexa, Compete) provide free audience traffic numbers accessible by the public. For example, *alexa.com*, founded on the Web since 1996, collects traffic reports from its millions of toolbar users. In return for user participation, Alexa provides traffic rankings, reach per million, and page views per user for free. However, its numeric data are available only back to a three-month period and participants tend to be heavier users than the typical Web users.

As a compromise between valid-but-limited data and invalid-but-accessible data, *Bacon's Internet Media Directory* provides the average users per month for all the media sites of which Nielsen's NetRatings has data. The 2006 and 2007 editions of *Bacon's Internet Media Directory*, which published traffic data from the previous year, were selected because the study attempts to look at traffic at two points in time to measure the concepts of audience concentration and product differentiation (see the last column of Table 11).

Market size indexes

To use more than one indicator to represent audience concentration, this study also collected a market-size ranking for each Web site, as suggested by the dissertation's committee members. There are several ways of categorizing media markets, for example, metropolitan statistical area (MSA) for daily newspapers, designated market area (DMA) for local television stations, and area of dominant influence (ADI) for local radio stations (see Table 10).

Table 10. Media Market Categorization

Index	Number of areas
Metropolitan statistical area (MSA)	363
Designated market area (DMA)	210
Area of dominant influence (ADI)	286

An MSA, defined by the United States Census Bureau, is one or more adjacent counties or county equivalents that have at least one urban cluster of at least 50,000, plus adjacent territory that has a high degree of social and economic integration with the core, as measured by commuting ties. There are 363 MSAs in the United States. DMA, trademarked by Nielsen Media Research, is a metropolitan area where the population can receive the same or similar television or radio content. There are 210 DMAs in the United States. An ADI, named by Arbitron, is a geographic area surrounding a city in which the broadcasting stations based in that city account for a greater share of the listening or viewing households than do broadcasting stations based in other nearby cities. In general, MSA, DMA, and ADI all rely on population to draw an area's boundary, only with the slightly different criteria mentioned above. To find the greatest common factor for the variable media markets, DMA with the fewest areas (i.e., 210) was selected as an index to identify each site's market size regardless of its media affiliations (see Appendix D).

Industry reports

Popular industry reports, though without business statements of individual news sites, provide business information on big media companies, which are the parent companies of many news sites. Three databases were used: EDGAR, HOOVERS, and COMPUSTAT. EDGAR is a database provided by the U.S. Securities and Exchange

Commission, allowing the public to retrieve real-time filings for a specific company and to find key company information, such as annual reports and statements of ownership. HOOVERS contains company overviews and histories, product or brand name listings, competitors, officer names and salaries, subsidiaries, financial data, and rankings. Standard & Poor's COMPUSTAT is a database of financial, statistical, and market information on active and inactive companies in the United States and Canada, covering more than 99 percent of the U.S. total market capitalization. All three databases were used to locate the amount of revenue growth and profit growth of news sites' parent companies in measuring the concept of conglomerate ownership (see the last column of Table 11).

MEASURES OF EACH CONCEPT

Variable list

As outlined in the hypotheses and research questions section, this study chose its independent and dependent variables primarily on theoretical grounds. Although one might argue that other variables based on empirical bases are as valid in explaining market performance of the online news industry, several of the basic tenets of theory development may be violated because one of the objectives in this study is to perform theory-testing rather than exploratory analyses. Thus, this section identifies the industry and firm variables theoretically associated with market performance.

Table 11 lists the theoretical concepts, the measures used to operationalize the concepts, and their data sources. In short, market performance was appraised by financial performance and business performance; industry structure was identified through audience concentration, conglomerate ownership, product differentiation, and economies of scope; firm behavior was assessed from discrete and systematic and property-based

and knowledge-based resources. The following is a detailed description of how each concept was measured.

Market performance measures

To measure the dependent variables (DVs), market performance was operationalized through financial and business performance (see Table 11). Financial performance was measured by the percentage of revenue growth and profitability. Respondents were asked, "Compared to fiscal 2005, your site's 2006 revenue was:" (Q13), and "What was your site's percentage of profitability in fiscal 2006?" (Q14-1). Note that revenue growth represented annual growth rate and profitability was defined as profit margin over a fiscal year (also see Equation 2 & 3). Four questions of business performance were asked as well: revenue growth, profitability, market share, and content quality, with respondents expected to provide perceptual assessments relative to their competitors on a 5-point Likert scale (Q18).

Table 11. Measures and Data Sources by Theoretical Concepts

Theoretical Concept	Representative Measures	Data Source
Market performance		
Financial performance (DV)	Revenue growth	Survey
	Profitability	Survey
Business performance (DV)	Relative revenue growth	Survey
	Relative profitability	Survey
	Relative market share	Survey
	Relative content quality	Survey
Industry structure		
Audience concentration (H1-1)	Traffic growth	Nielsen's NetRatings
	Market size	Nielsen Media Research
Product differentiation (H1-2)	Subscription fee	Survey
	Advertising rate	Survey
	Traffic growth	Nielsen's NetRatings
Conglomerate ownership (H1-3)	Parent's revenue growth	Hoovers, Compustat, Edgar
	Parent's profit growth	Hoovers, Compustat, Edgar
	Public ownership	Survey
Economies of scope (H1-4)	Number of content businesses	Survey
	Number of distribution systems	Survey
Firm behavior		
Discrete property-based resources (H2-1)	Copyrights	Survey
	Patents	Survey
	Trademarks	Survey
	Exclusive contracts	Survey
Systematic property-based resources (H2-2)	Age of a site	Survey
	Brand name use	Survey
Discrete knowledge-based resources (H2-3)	Number of employees	Survey
	Number of awards	Survey
Systematic knowledge-based resources (H2-4)	Degree of convergence	Survey
	R&D intensity	Survey

Industry structure measures

To test H1-1 to H1-4, industry structure was operationalized through audience concentration, product differentiation, conglomerate ownership, and economies of scope (see Table 11). In H1-1, audience concentration was measured by traffic growth and market size. Traffic growth, instead of traffic, was used because national sites must have more traffic than local sites, which doesn't suggest national sites perform better than local ones. Thus, traffic growth in percentage was considered a better measure of audience concentration. Traffic growth was calculated by the numbers of unique users per month in 2005 and 2006 from Nielsen's NetRatings (Equation 6). Another audience-related measure was market size. The market size in which each news site participates is identified based on Nielsen Media Research's DMA index.

$$\text{Traffic Growth} = \frac{2006\,UV - 2005\,UV}{2005\,UV} * 100 \quad (6),$$

where UV stands for unique users per month

In H1-2, product differentiation was measured by traffic elasticity. To assess traffic elasticity, three numbers were collected: subscription fees, advertising rates, and traffic data from two points in time (i.e., 2005 and 2006). To measure subscription fees and advertising rates, respondents were asked, "About how much was your annual subscription fee?" in fiscal 2005 and 2006 (Q10-1) and "About how much was your advertising rate?" in fiscal 2005 and 2006 (Q11-1). Note that the advertising rates were collected through the "average banner CPM" and/or the "monthly banner rate." Again,

traffic data of 2005 and 2006 were collected from Nielsen's NetRatings.

In H1-3, conglomerate ownership was measured by the parent company's revenue growth, profit growth, and public ownership. Revenue growth and profit growth were used because the study attempts to know whether a parent company's performance had any impact on its web site's performance. To measure the parent company's revenue growth and profit growth, each news site's parent company first was identified through the *Bacon's Internet Media Directory;* then the numbers of revenue growth and profit growth were looked up in Hoovers, Compustat, or Edgar. The public ownership question, "Which type of ownership best describes your company?" (Q14), was asked in the survey.

As to H1-4, scope economies were measured by PS score (also see Equation 5), which is calculated by multiplying the number of distinct content businesses by the number of distribution systems. Thus, respondents were asked, "Does your company or parent company own any of the following content businesses?" (Q15) and "Does your company or parent company own any of the following distribution systems?" (Q16). To obtain a PS score, the number of content businesses was multiplied by the number of distribution systems for each news site.

Firm behavior measures

Firm behavior, examined in H2-1 to H2-4, was operationalized through discrete/systematic and property-based/knowledge-based resources (see Table 11). In H2-1, discrete property-based resources (legal protection) were measured by the possession of copyrights, patents, trademarks, and exclusive contracts. Respondents were asked, "Has your site registered or filed the following kinds of intellectual property protection?" (Q7) and "Are there any employees of your site under contracts?" (Q6). Following industry experts' suggestions, the study provided a "yes-no-uncertain" type of choices for respondents, instead of asking a numerical answer. To create an index for discrete

property-based resources, “yes” was recoded as one; “no” as zero; “uncertain” as user-missing data.

With regard to H2-2, systematic property-based resources (historical endowments) were measured by the age of a site and the use of an existing brand. Respondents were asked, “In which year and month did your Web site launch?” (Q1) and “How is your site’s domain name similar to an existing brand?” (Q3). The age question attempts to examine a “first-mover advantage”; the brand question tests whether a news site takes advantage of an established brand image or reputation.

In H2-3, discrete knowledge-based resources (creative expertise) were measured by the size of staff that worked for a site and the number of awards won by a site. Respondents were asked, “Approximately how many full-time employees work mainly for your site?” (Q5) and “How many awards has your site won in the last three years?” (Q8). Since the two questions are relatively easy to answer, direct inquiries (i.e., open-ended questions) were attempted.

In H2-4, systematic knowledge-based resources (coordinative skills or teamwork) were measured by the degree of convergence and R&D intensity. The convergence question asked, “Some sites and their affiliations converge on one operation; others operate independently. How about your site?” (Q2-1). Four-level ordinal choices—converged, in transition toward convergence, in transition toward independence, and independent—were provided for respondents. The R&D intensity question asked, “How much research and development does your site undertake?” (Q9). Four-level ordinal choices were offered: a lot, some, not much, and none.

Note that RQ1 to RQ3 used the same measures as hypotheses did because the purpose of asking the three research questions is to evaluate model effects: when all the variables of the IO or/and the RBV model are considered together, what impact do they

have on market performance?

STATISTICAL ANALYSIS

Inferential statistics

According to Babbie (1998), researchers "should not calculate statistical significance on relationships observed in data collected from whole populations" (p. 430). That is, p-value is meaningless to decide whether the patterns that researchers see in the sample are statistically significant, because the patterns definitely exist in the population. Empirically, census studies conducted by Busterna, Hansen, and Ward (1991), Sumpter and Braddock (2002), and Lacy and Blanchard (2003) all acknowledged that it was correct not to use inferential statistics on the census. For example, Busterna, Hansen, and Ward stated, "Since this study analyzed the census of daily newspapers with more than 100,000 circulation, no inferential statistical tests need to be used" (p. 734). Lacy and Blanchard declared that "inferential statistics were not used because this was an effort at a census, and the newspapers were not a representative sample of any other daily newspapers outside the 25,000 to 100,000 circulation range" (p. 956).

Since this study's sampling frame was not big enough to draw a random sample from (also see Table 7), a census, rather than a random sample, was conducted. As a result, no inferential statistics, assuming the representativeness of samples selected through conventional probability sampling procedures were used. That is, the news sites under study are not a representative sample of all news sites in the United States but a census of news sites cross-listed in the 2006 and 2007 editions of *Bacon's Internet Media Directory* with at least 1,000 unique users per month. Although the census in the present study didn't reach a 100 percent response rate, an assessment of nonresponse bias showed no significant differences between respondents and non-respondents and between earlier

respondents and later respondents (also see Table 9), so it may be assumed that the results found in the sample do not differ much in the census.

Selection of statistics

Since all the hypotheses and research questions attempt to explore relationships among variables, the author chose correlation and regression to perform statistical analysis.

Correlation

To test H1-1 to H1-4 and H2-1 to H2-4, correlation was used to understand the bivariate relationships, also known as zero-order correlation. A correlation measures two main characteristics of a relationship: direction and strength (Gravetter & Wallnau, 2000). The direction of the relationship is identified by the sign of the correlation: a positive value indicates a positive relationship; a negative value indicates a negative relationship. The strength of the relationship reflects on the numerical value of the correlation: a correlation of 1.00 (or -1.00) indicates a perfect relationship; whereas a correlation of 0 indicates no relationship at all. Different scholars suggest different interpretations on the numerical value; for example, Cohen (1988) suggested that a small correlation lies below .30; a medium correlation rests between .30 and .50; and a large correlation rises above .50. Guilford and Williams have also suggested a rough guide: less than .20 as slight, almost negligible correlation; .20–.40 as low, definite-but-small correlation; .40–.70 as moderate, substantial correlation; .70–.90 as high, marked correlation; more than .90 as very high, very dependable correlation (Weaver, 1981).

To test the hypotheses in a non-inferential process, this study reports only the direction and strength of each hypothesized relationship but does not have inferential statistics to indicate how likely the relationship would occur by chance, given a certain

sized sample. One important reason for the decision is: whether a hypothesis is supported indicates "the likelihood that an observed relationship actually exists in the universe from which the sample was drawn" (Weaver, 1981, p.63), but this study doesn't intend to use a non-random sample (i.e., the census) as the basis for reaching a general conclusion. In other words, one objective of hypothesis testing is inference-making but a census study only can focus on the nature of the hypothesized relationships (Gravetter & Wallnau, 2000). Thus, this study interprets direction based on the sign of correlation coefficients and describes strength adopting Guilford and Williams' general guideline mentioned earlier. If a coefficient after rounded to the nearest ten has two-digit zero, it is interpreted as "no relationship." For a hypothesis to be supported or partially supported, a minimum .20 correlation must be achieved.

Multiple regression

To answer RQ1 and RQ2, multiple regression is an appropriate statistic because there is no third set of independent variables. Before the statistical analysis, the study evaluated the appropriateness of using regression. To avoid the dissertation becoming too tedious, Appendix E details the assumptions required for regression and the results of testing them, using the present sample. Multiple regression is an extension of correlation. As we know, when a problem involves one independent and one dependent, correlation can determine whether a relationship exists. A multiple regression analysis, however, is used to analyze the relationship between a single dependent and a set of independents. For example, a simplified equation[12] for the present study places market performance as a dependent and industry structure and firm behavior as independents (Equation 7). An

12. In the regression equation, we represent the dependent variable as $\hat{Y}$, the intercept as b_0, and the amount of change in the dependent variable because of each independent variable ($X_1, X_2, \ldots$) as $b_1, b_2, \ldots$, also known as regression coefficients.

important trait of multiple regression is the simultaneous assessment of relationship between each independent and the dependent in a model.

$$\hat{Y} = b_0 + b_1 X_1 + b_2 X_2, \quad (7)$$

where $\hat{Y}$ = market performance

X_1 = industry structure

X_2 = firm behavior

b_0, b_1, b_2 = regression coefficients

A regression analysis in general is to meet the objectives of either prediction or explanation (Tabachnick & Fidell, 2001). Prediction is an integral element in regression analysis, both in estimation process as well as forecasting situation. However, many research questions are focused more on assessing the nature and impact of each independent in explaining the dependent. In the multiple regression example discussed earlier, a statistically appropriate question to ask is whether X_1 or X_2 has the larger effect in explaining $\hat{Y}$. Independents with larger regression coefficients, all other things being equal, would make a greater contribution to the dependent. Since this study is cross-sectional, the objective of explanation, rather than prediction, is attempted. The goal of the study is more about understanding the various forces of the online news industry, rather than predicting the industry's performance based on the one-point-in-time study.

Hierarchical regression

To answer RQ3, hierarchical regression was used to evaluate the relative importance of industry and firm effects. Multiple regression is not sufficient to specify unique contribution of a set of independents on the dependent when other variables also

are concerned. Instead, hierarchical regression examining the relationship between a set of independents and the dependent is desired, controlling for the impact of a second or third set of independents on the dependent. For example, if industry effects have strong impacts on performance, hierarchical regression will investigate further whether the relationship holds even after firm effects are controlled. To perform hierarchical regression, a set of or several sets of control variables should be entered first and the set of explanatory variables entered last. The null hypothesis for the addition of each block of variables to the analysis is that the change in R^2 is zero, meaning that the explanatory variables have no effect on dependent variables. However, if the null hypothesis is rejected or the change in R^2 is substantial, the set of explanatory variables has a relationship to the dependent and the change in R^2 represents the explanatory power of the independents.

Again, to answer research questions in a non-inferential process, this study provides no accompanying tests of statistical significance. Instead, regression coefficients and standardized beta are used to describe the direction and strength of industry and firm effects on market performance. Specifically, R^2, rather than adjusted R^2, is used to answer the overall strength of the relationship between the set of independent variables and the dependent variable. Adjusted R^2 adjusts the number of sample size and independent variables to generalize the quality of fit, so it is more useful to calculate it based on a random sample and not on a census. Also, because of the explanatory purpose of this study, the standardized betas, rather than the unstandardized b, were used to compare the amount of influence in each independent variable on the value of the dependent variable. Note that the direction of the relationship still is based on the sign of the beta coefficients for the independent variable.

Chapter 4: Results

To attain a thorough understanding of the data and the relationships among variables, this chapter contains four major elements: (a) a sample profile summarizing the central tendency and the dispersion of all variables, (b) correlation matrixes examining the hypothesized bivariate relationships, (c) multiple regressions inspecting the first two research questions about the effects of industry and firm on performance, and (d) hierarchical regressions scrutinizing the last research question about the relative importance of industry and firm effects on performance. Note that an Analysis chapter that follows offers explanations for all research findings, so this chapter provides only objective description of numerical data.

SAMPLE PROFILE

As mentioned in the Methods chapter, this study's variables were mostly measured at the ordinal, interval, and ratio levels, so frequencies are not an appropriate way of summarizing data. Instead, central tendency and dispersion are two common ways of reducing the raw data to the most manageable forms (Babbie, 1998). Central tendency is a single number, such as mode, median, and mean, which can represent all the detailed data collected in regard to the variable; dispersion measures use data value such as range and standard deviation to indicate variability or differences between individual scores in the distribution. As a rule of thumb, researchers prefer using mean and standard deviation measures if data are continuous and normally distributed, whereas the median and range are preferred if data are ordinal or not normally distributed (Hair et al., 2005). Since the sample contains several ordinal and non-normally distributed variables (see Appendix F), each variable's median and range – rather than mean and standard deviation – were reported to better summarize its distribution.

Market performance measures

On average, participating sites reported revenue growth of 21 to 30 percent, a profit of 11 to 20 percent, and that they "agreed" their sites performed much better than their major competitors in 2006 (see Table 12). Additionally, 81 percent of the participating sites reported positive revenue growth and 60 percent of them reported positive profitability. However, note that the reported market performance levels of participating sites dramatically varied. Compared to 2005, 40 sites' revenue grew more than 50 percent; on the other hand, one site fell 11-20 percent. The range for profitability in 2006 among participating sites was even wider: 30 sites reported a profit of more than 50 percent, whereas 5 sites reported a profit margin below negative 50 percent. Similarly, 21 sites strongly agreed they performed much better than their major competitors; but 2 sites strongly disagreed. A good sign: More news sites clustered at the high end than at the low end, based on the numbers of range.

Table 12. Descriptive Statistics of Ordinal, Interval, and Ratio Variables

Variable	Median	Range		Valid N
		Minimum	Maximum	
Market performance measures				
Revenue growth (%)	21 ~ 30	-11 ~ -20 (n=1)	> 50 (n=40)	171
Profitability (%)	11 ~ 20	< -50 (n=5)	> 50 (n=30)	143
Relative performance	3=agree	1=strongly disagree (n=2)	5=strongly agree (n=21)	169
Industry structure measures				
Traffic growth (%)	2.3	-95.9 (n=1)	1203.69 (n=1)	206
Market size (DMA)	28	0 (n=12)	201 (n=1)	208
Traffic elasticity (index)	.40	0 (n=37)	46.48 (n=1)	124
Parent's revenue growth (%)	6.9	-9 (n=1)	41 (n=11)	101
Parent's profit growth (%)	-6.7	-309 (n=7)	432 (n=2)	101
Scope economies (PS score)	6	0 (n=27)	42 (n=2)	206
Firm behavior measures				
Discrete properties	1	0 (n=38)	4 (n=1)	123
Age of a site (months)	123	3 (n=1)	173 (n=1)	208
Brand name use	3=the same	1=different (n=30)	3=the same (n=112)	207
Number of employees	4	0 (n=9)	300 (n=1)	206
Number of awards	1	0 (n=78)	108 (n=1)	171
Degree of convergence	4=converged	1=independent (n=31)	4=converged (n=113)	184
R&D intensity	3=some	1=none (n=17)	4=a lot (n=30)	203

Industry structure measures

Among measures of industry structure, participating sites on average grew 2.3 percent in unique users per month in 2006 (see Table 12). The number echoed Pew Research Center's (2006a) report about the leveling of the size of the online news in 2006. On average, participating sites competed in the 28th media market based on the DMA index (see Appendix E), representing the sample composed of news sites from larger markets. A less-than-one elasticity score (.40) showed that participating sites on average were not differentiated enough to raise price over traffic growth. That is, most news sites are "price-takers" because of low differentiation. Regarding news sites' parent companies, they had an average revenue growth of 6.9 percent and an average profit growth of negative 6.7 percent. – indicating that many news sites actually outperformed their parent companies. Also, an averaged PS (i.e., potential measure of scope economies) score of 6 represented a considerable degree of diversification among news sites' companies; i.e., the companies owning a news site also operated other content businesses, such as newspapers and local television programming and participated in other distribution businesses such as printing service or cable service.

As far as range was concerned, in 2006, one site grew more than 1,200 percent in traffic, whereas one site lost almost all of its traffic. As to market size, one participating site was based in the 201st market (see Appendix E) while 12 sites were national news providers (coded as 0). Although 37 sites were not differentiated at all because their traffic elasticity scores were 0, one news site scored 46.48 in its elasticity index, indicating its competence to set a higher price than competitors. As to participating sites' parent companies, 11 sites grew 41 percent in revenue and 2 sites grew 432 percent in profit, whereas one site fell 9 percent in revenue and 7 sites fell 309 percent in profitability, compared to the previous year 2005. For example, The New York Times

Company did not do well in 2006: it made a profit of $260 million in 2005 but lost $543 million in 2006, so its profit growth was negative 309 percent [(-543-260/260)*100]. In addition, two sites' companies diversified in many content and/or distribution businesses (PS=42), whereas 27 sites' companies solely participated in either content or distribution business (PS=0).

In addition to Table 12's data, two nominal industry-related variables were collected: public ownership and corporate parent. Table 13 shows that 52 percent of participating sites reported being public companies while the rest were privately held. However, 85 percent of participating sites self-identified as a division of a larger parent company, whereas one-sixth said they were stand-alone companies.

Table 13. Descriptive Statistics of Nominal Variables

Variable	Frequency	Valid Percent
Public ownership		
Public companies	105	51.7
Private companies	98	48.3
(valid cases)	203	100.0
Corporate parent		
With parent companies	172	84.7
Stand-alone companies	31	15.3
(valid cases)	203	100.0

Firm behavior measures

Regarding measures of firm behavior, participating sites averaged a launch of 10 years ago (i.e., 123 months), used their traditional media affiliation's "same" brand names as their domain names, converged with their traditional media, and undertook "some" R&D activities (see Table 12). Since discrete property-based resources were measured at the nominal level,[13] an index was compiled by recoding the possession of copyrights, patents, trademarks, or contracts each as 1 and the lack of any such possessions as 0. So the index has a minimum value of 0 and a maximum value of 4. Participating sites on average had one type of discrete property-based resource. Besides, on average, they hired 4 full-time employees working mainly for the Web and won one award in the last three years.

Based on the range of firm behavior measures, Table 12 shows that 38 sites had no type of discrete property protected by law, whereas one site had all types (i.e., copyrights, patents, trademarks, and exclusive contracts). One site was well-established on the Internet for more than 14 years while one site had launched only for three months. More than half the news sites (112) borrowed existing brand names, whereas 30 sites used a totally different domain names from their traditional media. Also, more than half news sites (113) converged with their traditional media while 30 sites operated independently. In terms of R&D intensity, 30 sites reported undertaking a high degree of R&D but 17 sites reported no R&D in their operations. Notably, one site employed 300 people working mainly for the Web and in the past three years had won 108 awards while 9 sites still had no Web staff and 78 sites had received no awards. In sum, news sites varied a great deal in terms of various resources they possessed.

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[13] Of the 208 news sites, 111 owned copyrights, 10 owned patents, 84 owned trademarks, and 26 signed exclusive contracts with employees.

HYPOTHESIS TESTING

Missing data and outliers

Before testing this study's hypotheses, two issues should be addressed: missing data and outliers, to assure that variables were appropriate for further analysis. Missing data could be a problem in relationship analysis because a case would be excluded from the analysis if it is missing for any variable included in the analysis. According to Hair et al. (2005), three criteria can be applied to evaluate missing data.

First, if a variable is missing data for half or more of the cases, it should be considered a candidate for exclusion from the analysis. In Table 12, the variables parent company's revenue growth and profit growth had missed more than 104 cases (i.e., 208-101=107), so they were excluded from further analysis. Instead, a dummy variable, corporate parent, was utilized to distinguish whether a news site had a parent company or stood alone. The justification for this substitution was that corporate ownership generally concerned the difference in the average of returns that multiple-business firms and single-business firms can make (Bowman & Helfat, 2001). Thus, categorizing the sample into news sites with parent companies and those without parent companies to compare their performance outcomes should be appropriate.

Second, if a case is missing more than half the variables, it also should be considered a candidate for exclusion. This study used 16 questions from the survey; a missing variable analysis showed that each respondent answered at least 8 questions. Thus, all the 208 cases were retained for further analysis. Third, the pattern of missing values should be random. If the correlations among variables to represent missing and valid values are not random, the process of deletion or substitution for missing data requires some attention. An examination of missing data patterns among variables

showed that a non-random pattern of missing data existed. This suggested that using the mean to substitute missing values was inappropriate; to fix the problem, a complex Maximum Likelihood (ML) estimation (Enders & Bandalos, 2001) is a preferred method for substitution. After some preliminary tests, no substantial differences were found in results between listwise deletion and the more complex ML substitution, so listwise deletion was used for further analysis. This means that if a case is missing for any variable included in an analysis, the case will be excluded in that analysis.

With regard to outliers, the nature of data in the Internet world is not normally distributed and often positively skewed, a distribution that follows a power law (also known as the "80-20" rule, Tremayne, 2004) that Vilfredo Pareto called in the beginning of the 20th century the predictable imbalance of markets, culture, and society: Success breeds success, the rich get richer and so on. For example, the Interactive Advertising Bureau (2007) reported that 82 percent of total online revenue in the fourth quarter of 2006 was concentrated in the top 25 ad-selling companies. Several similarly skewed distributions also were found in this study: e.g., 80 percent of the news sites reported a Web staff of fewer than 10, but the remaining sites reported a Web staff as many as 300 (see Figure 4). In other words, some sites, albeit not many, outnumbered other sites dramatically. Although many techniques exist to discount or even eliminate outliers from a sample – such as reassigning outliers with values three standard deviations from the mean (Hair et al., 2005) – a researcher may risk improving the correlation analysis while limiting its representativeness. Because this study's outliers may provide an answer to the online news challenge, no discount or elimination was applied to the outliers except for some situations when outliers posed an inordinate influence on regression models. When that occurred, a revised model without outliers was used (see Appendix D for variables that were transformed in the revised regression models).

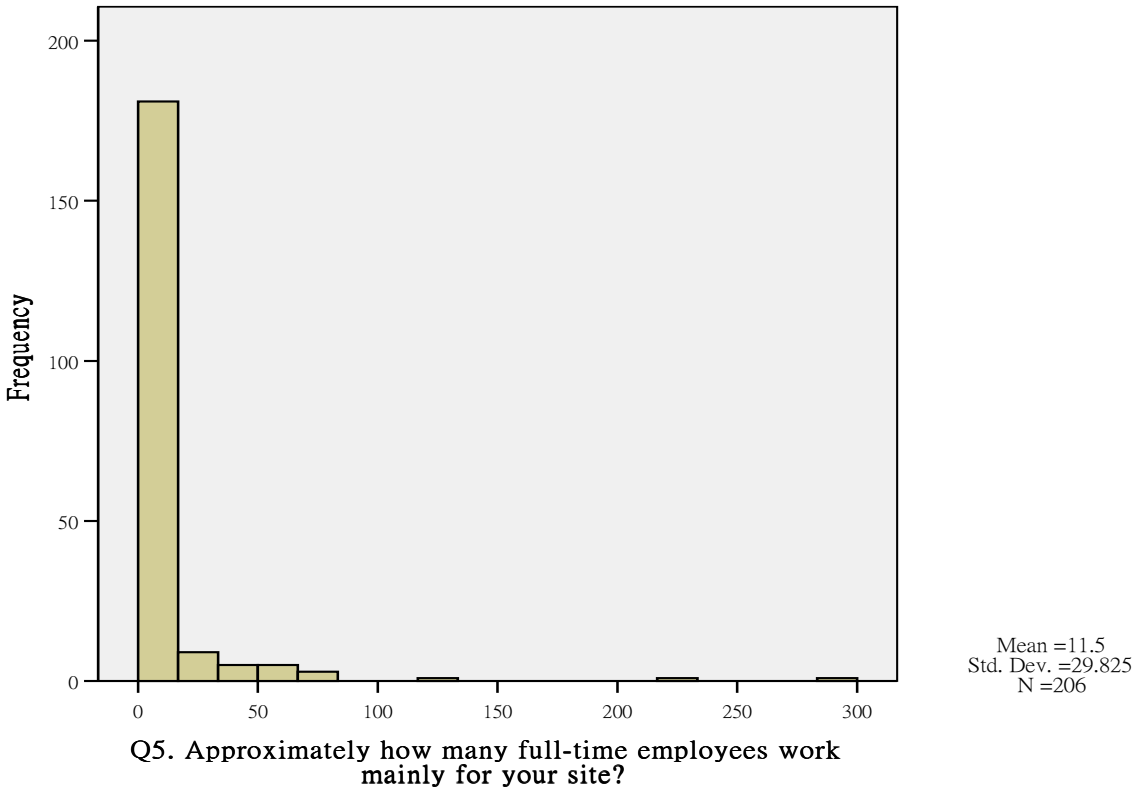

Figure 4. The Histogram of Number of Employees

Industry structure and market performance

H1-1: The more audience concentration the news site has, the greater its level of market performance.

H1-1 considers the relationships between traffic growth and the three performance measures and between market size and the three performance measures. Positive correlations were found between traffic growth and revenue growth and between market size and profitability, whereas no correlation was found between market size and revenue

growth; on the other hand, negative correlations also were found between traffic growth and profitability, between traffic growth and relative performance, and between market size and relative performance (see Table 14). In addition, the correlation between traffic growth and a news site's revenue growth is .16, which is less than .20, the minimum required to indicate a low, definite-but-small correlation. The correlation between traffic growth and profitability is -.20, which is the minimum required to indicate a low, definite-but-small correlation. But because of the negative sign, this correlation shows an inverse relationship. The correlation between traffic growth and relative performance is -.14, which is less than .20. The correlation between market size and site profitability is .06, which is less than .20. The correlation between market size and performance compared to competitors is -.26, a low, definite-but-small correlation. However, because the correlation is negative, this correlation shows an inverse relationship. In summary, of the six correlations, two meet the minimum requirement to indicate a low, definite-but-small correlation but those correlations represent inverse relationships. H1-1 is therefore partially supported.

Table 14. Correlations between Industry Structure and Market Performance

Variables	1	2	3	4	5	6	7	8	9
1. Revenue growth	1.000 (171)								
2. Profitability	.123 (141)	1.000 (143)							
3. Relative performance	.055 (151)	.262 (130)	1.000 (169)						
4. Traffic growth	.162 (170)	**-.195 (142)**	-.142 (168)	1.000 (206)					
5. Market size	.004 (171)	.057 (143)	**-.262 (169)**	-.077 (206)	1.000 (208)				
6. Traffic elasticity	-.030 (114)	.175 (99)	-.034 (111)	-.113 (124)	-.085 (124)	1.000 (124)			
7. Public ownership [a]	**.240 (167)**	**.272 (142)**	**.199 (164)**	.016 (201)	.006 (203)	.049 (122)	1.000 (203)		
8. Corporate Parent [a]	.097 (167)	**.197 (142)**	**.234 (164)**	-.064 (201)	-.010 (203)	.068 (122)	.330 (203)	1.000 (203)	
9. Scope economies	.070 (170)	-.015 (143)	.151 (169)	.083 (204)	-.107 (206)	.041 (124)	.057 (201)	.213 (201)	1.000 (206)

[a] The associations between public ownership and performance measures and between corporate parent and performance measures were calculated through point biserial (not Pearson product-moment) correlation because one variable was dichotomous and the other was continuous.

H1-2: The more differentiated the site is, the greater its level of market performance.

In H1-2, a positive correlation was found between traffic elasticity and profitability, whereas negative correlations were found between traffic elasticity and revenue growth and between traffic elasticity and relative performance (see Table 14). In terms of the strength of the relationships, the correlation between traffic elasticity and a news site's revenue growth is -.03, which is less than .20. The correlation between traffic elasticity and a site's profitability is .18, which is less than .20. The correlation between traffic elasticity and performance compared to competitors is -.03, which is less than .20. In sum, of the three correlations, none meet the minimum requirement to indicate a positive, definite-but-small correlation, so H1-2 is not supported.

H1-3: The larger the parent company, the greater the level of market performance of the news site.

H1-3 examines the relationships between two dummy variables (i.e., public ownership and corporate parent) and the three performance measures. The six relationships all showed positive correlations (see Table 14). Besides, the correlation between public ownership and revenue growth is .24, a low, definite-but-small correlation. The correlation between public ownership and a site's profitability is .27, a low, definite-but-small correlation. The correlation between public ownership and relative performance is .20, which is the minimum required to indicate a low, definite-but-small correlation. The correlation between corporate parent and a site's revenue growth is .10, less than .20. The correlation between corporate parent and profitability is .20, which is the minimum required to indicate a low, definite-but-small correlation. The correlation between corporate parent and relative performance is .23, a low, definite-but-small correlation. In sum, of the six correlations, five meet the minimum requirement to indicate a positive, definite-but-small correlation, so H1-3 is partially supported.

H1-4: The more diversified the parent company, the greater market performance the news site.

In H1-4, positive correlations were found between scope economies and revenue growth and between scope economies and relative performance; whereas a negative correlation was found between scope economies and profitability (see Table 14). With regard to strength, the correlation between scope economies and a news site's revenue growth is .07, which is less than .20. The correlation between scope economies and a site's profitability is -.02, which is less than .20. The correlation between scope economies and performance compared to competitors is .15, which is less than .20. In sum, of the three correlations, none meet the minimum requirement to indicate a positive, definite-but-small correlation, so H1-4 is not supported.

Firm behavior and market performance

H2-1: The more discrete property-based resources the site has, the greater its level of market performance.

Regarding H2-1, positive correlations between discrete properties and revenue growth, and between discrete properties and relative performance, were found, but no relationship occurred between discrete properties and profitability (see Table 15). In addition, the correlation between discrete property-based resources and a news site's revenue growth is .07, which is less than .20. The correlation between discrete property-based resources and performance compared to competitors is .11, which is less than .20. In sum, of the three correlations, none meet the minimum requirement to indicate a positive, definite-but-small correlation, so H2-1 is not supported.

Table 15. Correlations between Firm behavior and Market Performance

Variables	1	2	3	4	5	6	7	8	9	10
1. Revenue growth	1.000 (171)									
2. Profitability	.123 (141)	1.000 (143)								
3. Rel. performance	.055 (151)	.262 (130)	1.000 (169)							
4. Discrete properties	.072 (106)	-.004 (92)	.106 (103)	1.000 (123)						
5. Age of a site	-.147 (171)	.102 (143)	-.027 (169)	.020 (123)	1.000 (208)					
6. Brand name use	.075 (170)	.044 (142)	.017 (168)	.009 (122)	.000 (207)	1.000 (207)				
7. # of employees	-.023 (171)	.083 (143)	.062 (168)	.269 (123)	.194 (206)	-.074 (205)	1.000 (206)			
8. # of awards	-.043 (147)	.119 (122)	.049 (141)	.137 (100)	.140 (171)	-.090 (170)	.859 (171)	1.000 (171)		
9. Convergence	-.018 (151)	.052 (126)	.082 (150)	.098 (110)	.081 (184)	.122 (184)	-.143 (183)	-.129 (155)	1.000 (184)	
10. R&D intensity	.014 (170)	.030 (143)	.089 (168)	.159 (123)	.051 (203)	-.076 (202)	.198 (203)	.169 (169)	.019 (181)	1.000 (203)

H2-2: The more systematic property-based resources the site has, the greater the level of market performance.

H2-2 tests the relationships between (a) a site's age and the three performance measures, and between (b) brand name use and the three performance measures (see Table 15). Borrowing brand names from traditional media has positive correlations with the three performance measures. However, the correlation between brand name use and a news site's revenue growth is .08, which is less than .20; the correlation between brand name use and a site's profitability is .04, which is less than .20; the correlation between brand name use and performance compared to competitors is .02, which is less than .20. Age of a site, attempting to capture the first-mover advantage, had positive impact on profitability, but negative relationships with revenue growth and relative performance. In addition, the correlation between a news site's age and its revenue growth is -.15, which is less than .20. The correlation between a site's age and its profitability is .10, which is less than .20. The correlation between a site's age and its performance compared to competitors is -.03, which is less than .20. In sum, of the six correlations, none meet the minimum requirement to indicate a positive, definite-but-small correlation, so H2-2 is not supported.

H2-3: The more discrete knowledge-based resources the site has, the greater its level of market performance.

In H2-3, number of employees and number of awards – indicators of discrete knowledge-based resources – have a similar pattern of association with the performance measures (see Table 15). They both negatively correlate with revenue growth and positively correlate with profitability and relative performance. In terms of strength, the correlation between staff size and a news site's revenue growth is -.02, which is less than .20. The correlation between staff size and a site's profitability is .08, which is less than .20. The correlation between staff size and performance compared to competitors

is .06, which is less than .20. Besides, the correlation between the number of awards and a news site's revenue growth is -.04, which is less than .20. The correlation between the number of awards and profitability is .12, which is less than .20. The correlation between the number of awards and performance compared to competitors is .05, which is less than .20. In sum, of the six correlations, none meet the minimum requirement to indicate a positive, definite-but-small correlation, so H2-3 is not supported.

H2-4: The more systematic knowledge-based resources the site has, the greater the level of performance.

In H2-4, the degree of convergence and the R&D intensity were positively correlated with revenue growth, profitability, and relative performance except for the relationship between convergence and revenue growth (see Table 15). In terms of strength, the correlation between convergence and a news site's revenue growth is -.02, which is less than .20. The correlation between convergence and a site's profitability is .05, which is less than .20. The correlation between convergence and performance compared to competitors is .08, which is less than .20. In addition, the correlation between R&D intensity and a news site's revenue growth is .01, which is less than .20. The correlation between R&D intensity and profitability is .03, which is less than .20. The correlation between R&D intensity and performance compared to competitors is .09, which is less than .20. In sum, of the six correlations, none meet the minimum requirement to indicate a positive, definite-but-small correlation, so H2-4 is not supported.

Although bivariate correlations were important in understanding the nature of the relationships, this study is more interested in taking all the variables of a model into account and comparing the power of different models on market performance.

RESEARCH QUESTIONS

To answer RQs 1 to 3, the study first ran a baseline regression model including

original variables and a revised regression model incorporating variables with the transformations of assumptions mentioned in Appendix D and the omissions of multivariate outliers;[14] then compared the R-Square (R^2) for the baseline model to the R^2 for the revised model. As in convention, if the R^2 for the revised model improved more than 2 percent, the revised model was used in interpretation; if the R^2 for the revised model didn't improve more than 2 percent, the baseline model including the original variables was used. A note at the end of each table specifies which model was in use. The following tables should be read from left to right, with the independent variables in the far-left column and dependent variables in the top row.

Industry effects

RQ1: How does industry structure relate to market performance?

Table 16 shows that industry effects explained 15 percent of variance in revenue growth, 23 percent in profitability, and 22 percent in relative performance (see the R^2 row). Relatively, industry effects explained profitability and relative performance better than revenue growth. In terms of individual relationships, the independent variable with the largest beta coefficient value (positive or negative) stands for the strongest explanatory variable of the dependents in the specified model. Among the industry variables, public ownership was the strongest explanatory variable of all three performance measures: revenue growth, profitability, and relative performance (see Table 16). In terms of direction, positive signs of the three beta coefficients meant that a publicly owned news site was more likely to grow revenue, increase profits, and create competitiveness.

[14] A multivariate outlier is the one whose standardized residual score in the regression solution on both the dependent variable and the independent variables falls outside positive or negative 3.

Table 16. Multiple Regressions Using Performance Measures as Dependent Variables

	Revenue Growth	Profitability [a]	Rel. Performance
Independent Variables	Beta	Beta	Beta
Traffic growth	.201	-.071	-.151
Market size	.153	-.042	-.277
Traffic elasticity	-.032	.166	-.090
Public ownership	**.282**	**.386**	**.280**
Corporate parent [b]	-.001	-.003	.077
Scope economies	.131	.125	.029
R^2	.151	.234	.215
N	112	98	109

[a] The revised model is presented. Also see Appendix D for transformed variables.

[b] There is a violation of homogeneity between corporate parent and revenue growth.

Firm effects

RQ2: How does firm behavior relate to market performance?

Table 17 shows that firm effects, measured through the resource-based view of the firm, explained only 7 percent of variance in revenue growth, 16 percent in profitability, and 9 percent in relative performance (see the R^2 row). Firm effects were relatively better at explaining profitability than revenue growth and relative performance, but the explanatory power was weak. In terms of individual relationships, the strongest explanatory variables were different across performance measures. Revenue growth was

most impacted by brand name use. Specifically, the positive sign of the beta coefficients meant that a news site naming its URL more similar to their parent media had higher revenue growth than a site with different name. In addition, profitability and relative performance were most influenced by number of employees. That is, if a news site had more full-time employees working mainly for the Web, it was more likely to increase profits and create competitiveness in the market.

Table 17. Multiple Regressions Using Performance Measures as Dependent Variables

	Revenue Growth	Profitability [a]	Rel. Performance [a]
Independent Variables	Beta	Beta	Beta
Discrete properties	.093	-.043	-.022
Age of a site	-.145	.019	.110
Brand name use	**.161**	.066	.146
Num. of employees	-.045	**.438**	**.189**
Degree of convergence	-.044	-.164	-.153
R&D intensity	.101	-.035	.150
R^2	.074	.164	.088
N	94	80	92

[a] The revised model is presented. Also see Appendix D for transformed variables.

Industry effects controlling for firm effects

RQ3: What is the relative importance of industry effects and firm effects on market performance?

To answer RQ3, three steps are needed: (a) conduct a hierarchical regression to single out the unique contribution of industry effects on performance, (b) conduct another hierarchical regression to isolate the unique contribution of firm effects on performance, and (c) compare the relative contributions of industry and firm effects on performance.

In step 1, Table 18 shows that industry effects could uniquely explain 22 percent of variance in revenue growth, 13 percent in profitability, and 23 percent in relative performance after firm effects were controlled (see the R^2 change row). In terms of individual relationships after firm effects were controlled, pubic ownership still was the strongest explanatory variable of revenue growth and profitability, but it became less strong in explaining relative performance. Instead, market size was the strongest explanatory variable of relative performance. However, a negative sign meant that participating in a larger market actually decreased a news site's competitiveness.

Table 18. Hierarchical Regressions Using Performance Measures as Dependent Variables Controlling for Firm effects

	Revenue Growth		Profitability		Rel. Performance	
	Beta		Beta		Beta	
Independent Variables	Block 1	Block 2	Block 1	Block 2	Block 1	Block 2
Discrete properties	.212	.133	-.033	.039	-.018	-.068
Age of a site	-.187	-.073	.261	.236	-.034	-.091
Brand name use	.274	.260	.067	.074	.275	.167
Num. of employees	-.033	-.210	.090	.012	-.013	.018
Convergence	-.044	-.050	.050	-.019	.117	.040
R&D intensity	.016	.090	-.067	-.111	.242	.194
Traffic growth		.267		-.175		-.083
Market size		.288		.071		**-.337**
Traffic elasticity		-.020		.083		-.194
Public ownership		**.381**		**.234**		.271
Corporate parent [a]		-.207		.025		.034
Scope economies		.068		.120		.042
R^2	.168	.387	.080	.210	.152	.380
R^2 change		.219		.131		.228
N		66		60		64

[a] There is a violation of homogeneity between corporate parent and revenue growth.

Firm effects controlling for industry effects

In step 2, Table 19 shows that firm effects accounted for 12 percent of the variance in revenue growth, 6 percent in profitability, and 11 percent in relative performance after industry effects were controlled (see the R^2 change row). In terms of individual relationships after industry effects were controlled, brand name use still was the strongest explanatory variable of revenue growth. Number of employees was the strongest explanatory variable of profitability, but it became a weak explanatory variable once the industry effects were controlled. Instead, age of a site was the strongest in explaining profitability. It indicated an older site was more likely to make higher profits than a younger site. With regard to relative performance, the brand name use juxtaposes with the number of employees in Table 19 as the strongest explanatory variables because they have the same coefficient values. It indicated a news site using an existing brand name or hiring more people for the Web was more likely to consider itself competitive among rivals.

Table 19. Hierarchical Regressions Using Performance Measures as Dependent Variables Controlling for Industry effects

Independent Variables	Revenue Growth		Profitability		Rel. Performance [a]	
	Beta		Beta		Beta	
	Block 1	Block 2	Block 1	Block 2	Block 1	Block 2
Traffic growth	.332	.267	-.201	-.175	.022	.022
Market size	.230	.288	.047	.071	.291	.395
Traffic elasticity	-.101	-.020	.103	.083	-.079	-.108
Public ownership	.402	.381	.223	.234	.327	.266
Corporate parent	-.120	-.207	.023	.025	.084	.048
Scope economies	.037	.068	.109	.120	-.061	-.080
Discrete properties		.133		.039		-.104
Age of a site		-.073		**.236**		.139
Brand name use		**.260**		.074		**.229**
Num. of employees		-.210		.012		**.229**
Degree of convergence		-.050		-.019		-.031
R&D intensity		-.090		-.111		.190
R^2	.268	.387	.151	.210	.256	.371
R^2 change		.119		.060		.114
N		66		60		64

[a] The revised model is presented. Also see Appendix D for transformed variables.

Relative importance

To completely answer RQ3, which is to compare the relative importance of industry effects and firm effects on the three performance measures, the last step (shown in Figure 5) summarizes results from previous hierarchical regressions. The arrows represent unique contributions made by industry and firm effects on performance. Clearly, industry variables were more influential than firm variables across the three performance measures. Compared to the explanatory power exerted by firm variables, industry variables explained 10 percentage points (22% minus 12%) more of variance in revenue growth, 7 percentage points (13% minus 6%) more in profitability, and 12 percentage points (23% minus 11%) more in relative performance. Together, industry effects and firm effects were able to explain 34 (22% plus 12%) percent of revenue growth, 19 (13% plus 6%) percent of profitability, and 34 (23% plus 11%) percent of relative performance. Also, industry and firm effects were better at explaining revenue growth and relative performance than in explaining profitability.

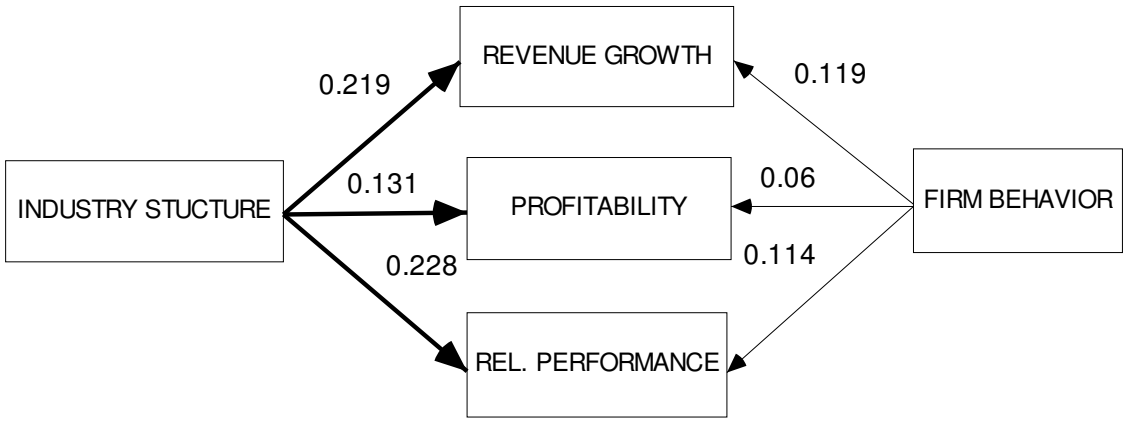

Figure 5. Summary of Hierarchical Regressions

Chapter 5: Analyses

This chapter synthesizes and explains research findings for the present study. Based on the IO and RBV models, the study specified 8 hypotheses and asked 3 research questions. This chapter first explains hypothesis testing results, including possible reasons for inconclusive results, and then compares the IO and RBV models in three contexts: (a) comparison of the effects of industry and firm on market performance, (b) comparison of industry and firm effects before vs. after controlling for the other and (c) comparison of industry and firm effects in the present study to results of previous research. Finally, a post hoc analysis using a new dependent variable attempts to explain why firm variables have little explanatory power on market performance in the online news industry.

ANALYSIS OF HYPOTHESES

Since this study examined 13 independent variables and 3 dependent variables, 39 bivariate relationships were tested. Five relationships met the minimum requirement to indicate positive, definite-but-small correlations; two, though indicating a low, definite-but-small correlations, showed inverse relationships (see Table 20). As a result, H1-1 and H1-3 were partially supported and H1-2 and H1-4 were not supported. The findings were later confirmed by regression models that the IO model (industry structure) has some explanatory power on market performance. Besides, H2-1 to H2-4 were not supported. The findings were later confirmed by regression models that the RBV model (firm behavior) has little explanatory power on market performance. General and specific explanations for the hypothesis testing were as follows.

Table 20. Summary of Hypothesis Testing

Hypothesis	Measure	RG [a]	PM [a]	RP [a]
H1-1	Traffic growth	.16	**-.20**	-.14
Audience concentration	Market size	.00	.06	**-.26**
H1-2	Traffic elasticity	-.03	.18	-.03
Product differentiation				
H1-3	Public ownership	**.24**	**.27**	**.20**
Conglomerate ownership	Corporate parent	.10	**.20**	**.23**
H1-4	PS score	.07	-.02	.15
Scope economies				
H2-1	Discrete properties	.07	.00	.11
Discrete property-based resources				
H2-2	Age of a site	-.15	.10	-.03
Systematic property-based resources	Brand name use	.08	.04	.02
H2-3	Num. of employees	-.02	.08	.06
Discrete knowledge-based resources	Num. of awards	-.04	.12	.05
H2-4	Convergence	-.02	.05	.08
Systematic knowledge-based resources	R&D intensity	.01	.03	.09

[a] RG stands for revenue growth; PM is profit margin; RP is relative performance

In general, the lack of support may come from the way of stating composite hypotheses. Since most IO and RBV empirical studies measured market performance through profitability (e.g., Fraumeni & Jorgenson, 1980; Song et al., 2007; Wernerfelt & Montgomery, 1988), this study added revenue growth and relative performance into

hypothesis testing, which complicated the results. Moreover, revenue growth and profitability technically are different things so they may not correlate with the same independent variables. A statement in the Harvard Business Review makes this clear: "For most managers today, growth is the holy grail. When charting strategy, they focus on ways to expand revenues, believing that higher sales will bring higher profits….There is one problem with this logic: it's wrong." (Gadiesh & Gilbert, 1998). For example, in a relative sense, the microprocessor industry (e.g., Intel, AMD) is a high-profit, low-revenue business compared to the hardware manufacturing industry (e.g., IBM, Dell), which is a high-revenue, low-profit business. Since revenue growth usually incurs more cost, as long as the increase in revenue—either in dollars or percentages—is disproportionate to the increase in cost, profitability could increase or decrease.

In addition, the small-to-no correlations between each independent and dependent in this study may come from the nascent nature of the online news industry. The industry ages 10 years or so (Boczkowski, 2004), compared with other news industries in the United States. The first U.S. daily newspaper published in 1783 by the Pennsylvania Evening Post; the first radio news program broadcasted in 1920 by station 8MK in Detroit, Michigan; and even the first television news program began in 1948, produced by CBS (Wikipedia.org, 2007). Traditional industries all have a history of at least 50 years, so various theory-testing, whether mass communication theories (e.g., agenda setting, framing: McCombs & Shaw, 1972; Reese, 2001) or theories from other disciplines (e.g., niche theory: Dimmick, 2003), found satisfactory support. As to the IO and RBV models which assume a market economy, it is not surprising to find small-to-no bivariate relationships among variables of industry structure, firm behavior, and market performance in the online news industry, which still is searching for viable business models.

In terms of specific explanations, H1-1 examined the relationship between audience concentration and market performance (see Table 20). This study measured audience concentration on a news site (via traffic growth) and in a media market (via DMA) and assumed traffic growth and market size had positive correlations with market performance. Two possible reasons may explain why H1-1 was partially supported but in an opposite direction. First, for the negative, definite-but-small relationship with profitability: Higher traffic would create high demand for advertising and, thus, higher revenue, but at the same time the higher traffic may increase the cost it takes to generate that traffic and thus, decrease profitability. Efforts to maintain a traffic-concentrated site require capital (e.g., more servers) and labor (e.g., more content), so a traffic-concentrated site could – while bringing more revenue – also incur higher maintenance costs. Second, results also showed that market size had a negative, definite-but-small relationship with relative performance. Launching a news site in a populated media market may bring more uncertainty. Although larger media markets have larger consumer bases, news sites participating in a larger market simultaneously face greater uncertainty because of competitors – who may be more numerous because the bigger the market, the larger its profit potential and the more competitors it attracts – in such a market. As a result, the site managers might feel less competitive.

H1-2 examined the relationship between product differentiation and market performance, but the results failed to support the hypothesis (see Table 20). The whole idea of product differentiation concerns the extent to which firms are able to enhance market performance by charging a premium price higher than that charged by competitors (e.g., niche theory: Bain, 1959). Because product differentiation results in loyalty, customers still may buy a company's product even if the price rises above that of rival companies. Similar assumptions apply to media industries: If a media company's

content is unique, advertisers still may buy the company's ads even if the price rises above what may normally be commanded by its circulation, rating, or traffic growth. However, Porter (1985) warned that a differentiated product required not only uniqueness but also wide appeal; i.e., if product differentiation aims at superior market performance, the product should be unique and widely valued. Therefore, the lack of support found between product differentiation and market performance could occur because those highly differentiated sites might be unique but not yet widely valued by enough users.

In H1-3, which examined the relationship between conglomerate ownership and market performance, results partially support the hypothesis (see Table 20). Previous studies may explain why H1-3 was partially supported. The results partly echoed Lacy and Blanchard's (2003) pubic ownership effect and Chang and Singh's (2000) corporate parent effect. Lacy and Blanchard found that publicly held media companies had higher profit margins than privately owned ones because, they reasoned, the former face more stockholder pressure than the latter when it comes to profit-seeking. The current study's results reflect this and show that publicly owned news sites also have higher revenue growth and relative performance. In addition, these results also reflect Chang and Singh's findings that the corporate parent was likely to contribute to the success of its subsidiaries because the news sites with corporate parents in this study outperformed news sites without corporate parents in profitability and relative performance.

H1-4 tested the relationship between scope economies and market performance (see Table 20). Measuring scope economies represented an attempt to determine whether a news site's company or parent company participating in various content and distribution businesses helped or hurt its market performance. Results showed a lack of support between scope economies and market performance. Previous findings could help explain this; for example, Wernerfelt and Montgomery (1988) and Jung and Chan-Olmsted

(2005), as mentioned in the Literature Review, found that narrowly diversified firms contribute to better financial performance than do widely diversified firms because the latter tend to diversify outside their core or initial industry. Although scope economies (or diversification) aim at sharing inputs and spreading the cost between products, a widely diversified firm often has to spend more because it is managing more or expanding resources that require heavier investment, which cuts into profits. Since the businesses (i.e., newspapers, magazines, radio, television, cable, Internet, etc.) specified in this study fit into Wernerfelt and Montgomery's or Jung and Chan-Olmsted's definitions of a wide or unrelated type of diversification, they could account for the lack of support.

In H2-1, which examined the relationship between discrete property-based resources and market performance, results failed to support the hypothesis (see Table 20). Discrete property-based resources usually are legally protected resources, which create immobility among competitors for at least a certain period, during which companies possessing those properties enjoy the exclusive right of exploiting them to enhance market performance. However, creating discrete property-based resources, such as copyright, patents, trademarks, and contracts, also constitutes a costly expense. For example, the contract of Katie Couric, the current highest-paid news talent in the United States, cost CBS $15 million per year. So, discrete property-based resources may enhance market performance but performance also depends on how well a news site manages its cost.

For H2-2, which examined the relationship between systematic property-based resources and market performance, the results showed a lack of support (see Table 20). Several explanations exist: First, the first-mover effect measured by age of a site may not be as beneficial as first thought. As some scholars have pointed out, being the first mover has two obvious drawbacks – cost and risk: It is not only expensive to be a pioneer –

often investing upfront in R&D and market education – but it also is risky, as the first company in a market cannot benefit from knowledge of the experiences of others (Barney, 1991). Second, regardless of industry, as a company ages, the company tends to not grow as fast as before. And, as noted above, as its first-mover advantages dissipate, other companies targeting the same market learn from its (i.e., the company's) experience, increasing their performance at the expense of the first mover.

H2-3 examined the relationship between discrete knowledge-based resources and market performance, but the results did not support it (see Table 20). One possible reason for the lack of support between discrete knowledge-based resources and market performance is that quality may not equate with quantity, a function similar to product differentiation (i.e., uniqueness may not equate with prevalence). In other words, the number of employees and number of awards represent the inputs and outputs of knowledge creation; i.e., the more employees working for a news site, the more awards won by the news site, the higher the quality of the site. However, that quality might not transform into superior market performance because such performance requires efforts from other parties, such as ad sales people or large consumer bases.

In H2-4, which examined the relationship between systematic knowledge-based resources and market performance, results failed to support the hypothesis (see Table 20). Since R&D is largely ignored by media companies; e.g., only one-tenth of 1 percent of newspaper expenditure was used for innovation every year according to Picard (Huang, 2006), it is reasonable that the study didn't find enough positive support between R&D intensity and market performance among the news sites. As to the degree of convergence, one possible reason also is the disconnection between quality and quantity. In other words, the degree of convergence stands for the amount of knowledge-based resources; i.e., the more the site's parent media contribute creates the quality of the site (Huang & Heider,

2007). However, that quality may not transform into superior market performance because of several aforementioned reasons.

ANALYSIS OF RESEARCH QUESTIONS

Comparing explanatory powers of IO and RBV

Recall that the major difference between the IO and RBV models is that IO argues that external environment (or industry structure) determines firms' market performance and RBV suggests that internal attributes (or firm behavior) drive firms' performance outcomes. Scholars in each school of thought not only uphold their model with stronger effects on market performance but some also claim the other model has negligible influence (e.g., Rumelt, 1991; Schmalensee, 1985). Overall, RQ1 and RQ2 found that both models had some explanatory power on market performance in the online news industry, but RQ3 showed that IO's industry variables uniquely explained about twice as much variance in revenue growth, profitability, and relative performance than did RBV's firm variables (see Figure 5). Several reasons may explain the strong industry effects and weak firm effects in the online news industry.

From the standpoint of theories, because the IO model is based on industry's characteristics and the RBV model emphasizes firms' attributes, stronger IO effects mean industry structure plays an influential role in the online news industry. Industry structure can be understood at two levels: macro and micro. At the macro level, the structure of the online news industry represents a lowly concentrated or monopolistic competitive market where no news sites have excessive market power in pricing (see Table 4), thus the level of performance tends to be low compared to that in a highly concentrated market. Although this study focuses on only one industry, results seem to confirm the "low-performance" characterization because the news sites' averaged revenue growth was 21-

30 percent and average profitability was 11-20 percent, a level lower than traditional media. At the micro level, indicators of industry structure such as audience concentration, product differentiation, conglomerate ownerships, and scope economies also explained some sites' out-performance of others. For example, a publicly owned news site may also indicate its potential to have better market performance than a privately owned site. Or, a news site owned by a more diversified firm may signify its ability to increase revenue and create competitiveness than a site operated by a less diversified firm. In addition, indicators of industry structure also individually had stronger impact on market performance as shown in the correlation matrixes than factors of firm behavior such as discrete/systematic and property/knowledge based resources.

From the standpoint of industries, this study found that a news site's market performance was more determined by forces outside the news sites (e.g., public ownership, market size) and less determined by resources possessed by a news sites (e.g., age of a site, brand name use, number of employees). The imbalance of internal and external power may symbolize the relative newness of the industry because their performance depends heavily on other's hands just as children depend on parents or on the environment, rather than on themselves, to make decisions or to behave. This may explain why a news site's behavior, based on the results found so far, has little explanatory power. But for those skeptical about such a conclusion, a post hoc analysis is provided later in this chapter for possible alternative explanations.

Comparing explanatory power before and after control

After comparing the strength between the two models, it is necessary to explore the two models' relationship. Based on results found between RQ1 and RQ3 and between RQ2 and RQ3, the explanatory power of industry and firm effects fluctuated before and after the other set of effects was controlled. As a rule, an increased explanatory power

after control means that a true relationship is found after removing unwanted shared variance with the controlled construct, whereas a reduced explanatory power after control suggests the controlled construct intervenes between two related constructs. Usually a reduced explanatory power requires some explanation because of the controlled construct's intervention. Theoretically, a mediating effect (Hair et al., 2005) is created when a third construct intervenes between two other related construct, e.g., if Z mediates a relationship between X and Y, it means Z facilitates the relationship between X and Y. The evidence of saying Z facilitates, rather than hinders, the X-Y relationship steams from the situation that X's effect on Y is reduced after removing Z's effect on Y.

Table 21 summarizes and shows that industry effects after controlling for firm effects were able to explain 7 percentage points more of the variance in revenue growth and 1 percentage point more in relative performance, but 10 fewer percentage points in profitability. The reduced explanatory power on profitability may represent some mediation of firm effects on the relationship between industry structure and market performance. That is, industry effects contributed to the level of profitability, but removing firm effects showed industry structure no longer had as strong influence on profitability; so firm effects acted as a possible mediator.

Table 21. A Comparison of Explanatory Power before and after Control (In Percent)

Type of Effects		Revenue growth	Profitability	Relative Performance
Industry effects	R^2 before control	15	23	22
	R^2 after control	22	13	23
	Difference	7	-10	1
Firm effects	R^2 before control	7	16	9
	R^2 after control	12	6	11
	Difference	5	-10	2

In a similar vein, Table 21 shows that firm effects, after controlling for industry effects, explained 5 percentage points more of the variance in revenue growth and 2 percentage points more in relative performance, but 10 fewer percentage points in profitability. As a result, the reduced explanatory power on profitability may represent some mediation from industry effects. That is, firm effects' explanatory power was stronger before industry effects were removed and was weaker after industry effects were removed, so industry effects – acting as a possible mediator – facilitate the relationship between firm behavior and profitability.

Since a complete mediation analysis for multiple-variable construct requires path analysis or structural equation modeling – which is beyond the scope of the study – the analysis above provides a conceptual explanation of a possible mediating effect, rather than testing it statistically. However, the results suggests, as far as the debate between IO and RBV goes, that the relationship between industry effects and firm effects may not be causal but mediating when it concerns profitability. In this regard, then, both IO and RBV scholars are partly right in specifying industry effects and firm effects, respectively, as

explanatory variables of market performance; however, few IO or RBV scholars emphasize the complementarity between the IO and RBV models. The complementarity of the schools was first addressed by Mauri and Michaels (1998); this study provides some numerical evidence to support their view.

Cross-study comparison of explanatory power

In addition to an internal check of the results, an external comparison with various studies regarding industry and firm effects might help explain the current study's results. For comparison purposes, Table 5 was reproduced somewhat here to incorporate the RQ3's results of the present study. The 7 previous studies as a group include various dependent variables, return on assets, Tobin's q,[15] market share, revenue growth, profit margins, and relative performance, which in general are business-related and imperfectly correlated. However, the present study differed in many ways. First, the study focused on the online news industry, whereas most previous studies researched manufacturing industries. Second, the present study mainly adopted a survey method because the online news industry hasn't had a complete financial database for analysis, whereas previous studies all applied database analysis. Third, the current study broadly defined industry effects as effects generated outside a business unit (i.e., a news site) while previous studies used SIC codes (e.g., 3-digit or 4-digit) to define an industry and its related effects. Fourth, the study used regression statistic to estimate industry and firm effects, where most previous studies applied analysis of variance (ANOVA) and variance components because of the nominal nature of their independent variables.

[15] Only 3 out of 208 sites claimed that they were nonprofit organizations.

Table 22. A Comparison of Explanatory Power in the Present Study and the Previous Studies (In Percent)

Type of Effects	Schmalensee (1985)	Wernerfelt & Montgomery (1988)	Rumelt (1991)	McGahan & Porter (1997)	Mauri & Michaels (1998)	Chang & Singh (2000)	Huang (2007) [a]
Industry effects	19.6	19.5	8.3	18.7	5.8~6.2	13.1~15.9	13.1~22.8
Firm effects	0.6	2.6	46.4	31.7	25.4~36.9	31.9~50.2	6.0~11.9
Industry & firm effects	20.2	22.1	54.7	50.4	31.2~43.1	45.0~66.1	19.1~34.7
Dependent variable	ROA per business	Tobin's q per company	ROA per business	ROA per business	ROA per business	Market share per business	Revenue growth, profitability, relative performance per business

[a] Results are reproduced from Figure 5.

With these factors in mind, Table 22 shows that the size of industry effects on market performance for the online news industry ranged from 13 to 23 percent, a result in line with that of most previous studies of the manufacturing industries (e.g.,Chang & Singh, 2000; McGahan & Porter, 1997; Schmalensee, 1985; Wernerfelt & Montgomery, 1988). The finding of relatively higher industry effects by the present study may result from its usage of the IO model to define industry effects, which theoretically includes corporate variables (e.g., corporate ownership and scope economies). For example, Rumelt separated corporate effects from industry effects and reported them individually, so the effects were partitioned off. But this study, following IO's definition of industry structure (Bain, 1959; Scherer & Ross, 1990), included variables of corporate ownership and scope economies in industry structure, so a larger size of industry effect was found.

However, the size of firm effects on market performance for the online news industry, ranging from 6 to 12 percent, was much lower than that found in most recent studies. Studies emphasizing the importance of firm heterogeneity (e.g.,Chang & Singh, 2000; Mauri & Michaels, 1998; McGahan & Porter, 1997; Rumelt, 1991) found that firm variables increased explained variance to a range between 25 and 50 percent, compared to the present study's detection of 6 to 12 percent. Several reasons could explain the discrepancy. First, the samples in previous studies were large business units in large and well-diversified corporations, so those business units alone had strong and similar levels of influence on their market performance because of self-sufficiency (Chang & Singh, 2000). On the other hand, the present study's sample consisted of news sites ranging from 1,000 unique visitors to 28 billion unique visitors per month; thus, it's likely the small news sites mitigated the larger news sites' firm effects. Since this study's sample was too small to split into bigger sites and smaller sites for separate regression analyses, future research might resolve the speculation. Second, most – if not all – business units in the

manufacturing industries are profit-seeking, so their firms' behavior or strategy is designed to pursue the ultimate goal. But quite a few news sites still claim themselves as an online complement to their offline parent media, or as an interactive forum for their offline readers or viewers. As a result, a news site may not behave or strategize in a way that would maximize market performance, but rather behave to meet other purposes, such as image-building or traffic-generating. The following post hoc analysis addresses this issue.

POST HOC ANALYSIS

Traffic as a new dependent variable

The size of firm effects detected on market performance in the online news industry was considerably lower than studies based on firm heterogeneity (Chang & Singh, 2000; McGahan & Porter, 1997; Rumelt, 1991). Since this study also assumed no competing firms were identical in the resources they control, differential performance outcomes were expected. However, results show that the resources possessed by news sites explained only 6 to 12 percent of their market performance. Were those resources valueless, or were they amassed for other purposes? In various media-related studies, circulation, rating, or traffic was used as a proxy of market performance (e.g., Chan-Olmsted & Ha, 2003; Stavitsky, 2000), so each news site's traffic in 2006 was treated as a new dependent variable and correlated with the two sets of independent variables. As a trade-off, two independent variables – traffic growth and traffic elasticity – characterizing industry structure from this analysis were removed because independent and dependent variables should not use the same component, to avoid redundant correlations. Similar to the analyses of previous dependent variables, multiple regressions and hierarchical regressions were performed to examine the industry and firm effects on traffic.

Industry effects and firm effects

Table 23 shows that industry effects could explain only 3 percent of variance in traffic of 2006, whereas firm effects were capable of explaining 90 percent. With regard to individual explanatory variables, market size had the strongest effect among industry variables on traffic; number of employees had the strongest effect among firm variables on traffic. It makes sense that a news site in a larger market is more likely to generate more traffic than a site at a smaller market. Also, if a news site has more employees refreshing content constantly, it is more likely to attract more traffic (note that a beta coefficient of .941 represents a very strong and positive influence of the number of employees on traffic).

Table 23. Multiple Regressions Using 2006 Traffic as Dependent Variable

	2006 Traffic		2006 Traffic
Independent variables	Beta	Independent variables	Beta
Traffic growth	--	Discrete properties	.002
Market size	**.168**	Age of a site	-.010
Traffic elasticity	--	Brand name use	-.013
Public ownership	.125	Num. of employees	**.941**
Corporate parent	-.007	Degree of convergence	-.059
Scope economies	-.057	R&D intensity	-.024
R^2	.029	R^2	.897
N	201	N	110

Industry effects and firm effects with control

Table 24 shows that industry effects could not even explain 1 percent of variance in traffic when firm effects were controlled. Firm effects, however, uniquely contributed 79 percent of variance in traffic. Compared to Table 23, industry effects after control explained 4 fewer percentage points (5% minus 1%) in traffic while effects after control explained 11 fewer percentage points (90% minus 79%) in traffic. Similar to the aforementioned mediating effect, the decreased explanatory power may represent some mediation of industry effects and firm effects relative to traffic.

Table 24. Hierarchical Regressions Using 2006 Traffic as Dependent Variable with Controls

	2006 Traffic			2006 Traffic	
	Beta			Beta	
Independent variables	Block 1	Block 2	Independent variables	Block 1	Block 2
Discrete properties	.012	.009	Traffic growth	--	--
Age of a site	-.013	-.011	Market size	.177	.022
Brand name use	-.005	.002	Traffic elasticity	--	--
Num. of employees	.940	.934	Public ownership	.104	-.019
Convergence	-.065	-.061	Corporate parent	-.293	-.063
R&D intensity	-.020	-.021	Scope economies	.145	-.030
Traffic growth		--	Discrete properties		.009
Market size		.022	Age of a site		-.011
Traffic elasticity		--	Brand name use		.002
Public ownership		-.019	Num. of employees		**.934**
Corporate parent		**-.063**	Convergence		-.061
Scope economies		-.030	R&D intensity		-.021
R^2	.905	.912	R^2	.125	.912
R^2 change		.007	R^2 change		.787
N		107	N		107

As for individual relationships, corporate parent (replacing market size), became the strongest, negative explanatory variable of 2006 traffic after controlling for firm

effects (see Table 24) – signifying that if a news site operates under a parent company, it is more likely to attract less traffic than if it had been a stand-alone site. Number of employees still is the strongest explanatory variable of 2006 traffic before (or after) controlling for industry effects. The following summary provides the gist of the post hoc analysis using traffic as a new dependent variable compared to the previous three dependent measures.

SUMMARY

Reproducing Figure 5 yields a fuller picture of industry effects and firm effects on market performance and traffic (see Figure 6). In sum, RQ3 showed that industry effects have a larger influence on revenue growth, profitability, and relative performance than firm effects, which explain traffic more strongly than do industry effects in the *post hoc* analysis. Specifically, industry variables explained about twice as much variance in revenue growth (22% vs. 12%), profitability (13% vs. 6%), and relative performance (23% vs. 11%) than did firm variables. On the other hand, firm variables explained 79 percent of traffic variance while negligible industry effects affected traffic differences among news sites. Figure 6 clearly showed that firm resources aggregated by news sites were more for traffic purposes because of a 79 percent of variance explained than for market performance; i.e., those firm variables indeed had explanatory power, but their effects influenced traffic, not market performance. On the other hand, those industry-related variables, mostly beyond a news site's control, exerted almost all their influence on market performance, not on traffic. Results seemed to tell that news sites set their ultimate goal at traffic, rather than using traffic as a tool to achieve market performance (although it is understandable that news sites dedicated enormous attention to traffic because of its potential impact on performance).

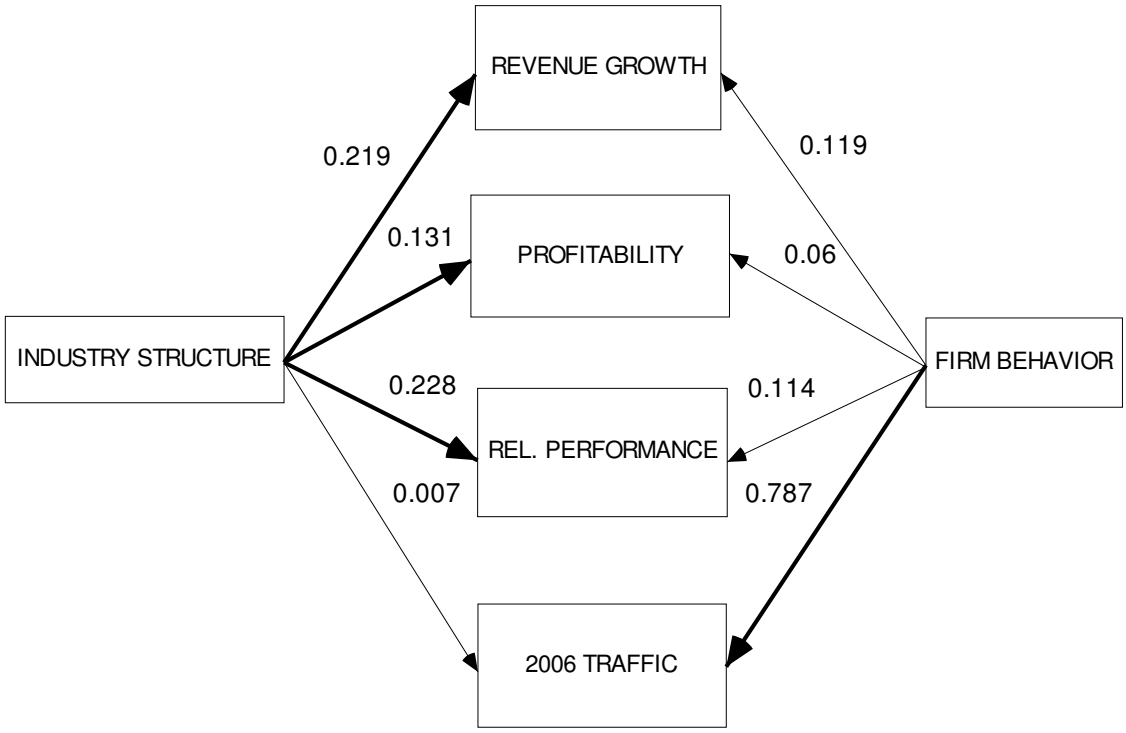

Figure 6. Summary of Hierarchical Regressions Including Traffic

In terms of the strongest explanatory variables, Table 25 summarizes the results found in RQ3 and the *post hoc* analysis. The variables with the largest influence on revenue growth are public ownership and brand name use; the variables with the largest influence on profitability are public ownership and age of a site; the variables with the largest influence on relative performance are market size (in negative direction), brand name use, and number of employees; the variables with the largest influence on 2006 traffic are corporate parent (in negative direction) and number of employees. Looking at the strongest explanatory variables of traffic and market performance also explained the disparity between them. For example, brand name use and age of a site were the strongest explanatory variables of market performance, but they had minimal effects on 2006

traffic. On the other hand, corporate parent among industry variables had strongest and negative effects on 2006 traffic but was not important in explaining market performance.

Table 25. Strongest Explanatory Variables in IO and RBV

Model	Revenue Growth	Profitability	Relative Performance	2006 Traffic
IO	Public ownership	Public ownership	Market size	Corporate parent
RBV	Brand name use	Age of a site	Brand name use Number of employees	Number of employees

Thus, the logical questions at this point become: (1) Why do the firm variables not have equivalent explanatory power on market performance as in previous studies, and, (2) why do firm variables have the most impact on traffic? Two possible answers: (a) Online news sites were not profit-seeking, or (b) online news sites aimed at an alternative goal. Since it's not likely that the online news sites in this study ignored the profit-seeking motivation,[16] they more likely sought profit but with an insufficient strategy. Online news sites possibly devoted their resources to increase traffic and took "high traffic, high market performance" for granted but, in fact, they obviously differ.[17] In other industries, the quantity of products a firm sold pretty much predicted the firm's revenue (total revenue = price x quantity) because the firm collected money from the person buying its products or services. In media industries, the dual-product-market (Picard, 1989) aspect complicates the process: A media firm provides its content to audience (the information market) but collects money mostly, if not all, from advertisers

[16] Only 3 out of 208 sites claimed they were nonprofit organizations.
[17] To further prove the speculation, a bivariate correlation statistic was performed and the correlation coefficients between traffic and the three performance measures were all within .10, representing a positive but almost negligible association.

or sponsors (the advertising market). If some links during the process are broken or not yet built, the process won't work. The results approximate a broken link between traffic and market performance: News sites might assume high traffic equates with high market performance, so they devote much of their resources to it; however, a direct look at the relationship between the news sites' resources and their market performance shows low association.

The implication is two-fold: (1) News sites need to know how to monetize traffic so that the broken link between traffic and market performance can be connected or built, and (2) news sites need to make themselves clear about their ultimate goal (i.e., market performance) when monetizing traffic. For the first part, as previous studies stated, the online news industry still lacks viable business models (e.g., Chan-Olmsted & Ha, 2003; Chyi, 2005; Mings & White, 2000), which really points to a pressing issue for the industry. The business model in use (i.e., the advertising model) requires a solid linkage between the information market and the advertising market: A good example is how the television industry links its ratings to revenue. But the linkage hasn't been solidly established in the online news industry. Put another way, generating traffic may be a necessary, but not a sufficient, condition of superior market performance. Thus, the current study emphasizes that no matter how a news site decides to monetize its traffic or use other means to generate revenue, its ultimate goal should always be on market performance if it is a profit-seeking entity. For example, industry variables, which largely capture the characteristics of news site's company, parent company, and external market, showed a very clear focus on market performance after taking into consideration the traffic. On the other hand, firm variables delineating a news site's resources allocation appeared to use its influence on traffic. In other words, results suggest that news sites and their corporate parents were setting different goals when making choices regarding

industry structure and firm behavior. Not only does pursuing traffic differ from achieving market performance, different performance indicators also differ from each other. For example, revenue growth has its own strongest explanatory variables, which differ from profitability and from relative performance. More implications about differences among revenue growth, profitability, and relative performance are provided in the next chapter.

Chapter 6: Discussion

THE CHALLENGE

To recap the previous discussion: The online news industry faces a fundamental challenge in whether it can produce enough quality content that generates revenue and profit at a level comparable to traditional media. This begs the question of whether traditional media, losing their audience to the Internet, can generate profits comparable to those of print or broadcast media. In 2005, the newspaper industry had an average pre-tax operating profit margin of around 20 percent; local TV stations had an average of 45 percent (Project for Excellence in Journalism, 2006). But the present study found the average profit margin reported by the 208 online news sites hovered between 11 and 20 percent. A crude approximation shows that the average profitability at 33 percent [(20+45)/2] in traditional media and at 15 percent [(11+20)/2] in online news media.

Using those numbers, a supply-and-demand curve clearly denotes the challenge. Figure 7 shows the average profitability of the traditional media on the left side and that of the online news media on the right. Theoretically, three reasons may cause online news sites to make fewer than half the profits of those in traditional media in a market economy: decreased demand, increased supply, or both. Given that an average of 36 percent of Americans read newspapers, watched television news, or listened to radio news with regularity and that Americans who regularly get news online had reached 31 percent (Pew Research Center, 2006b), the demand for online news is only 5 percentage points (see arrow 1 in Figure 7) lower than that for traditional news. If the demand curve only slightly shifts to the left, the solvency challenge must mainly come from a considerable shift of the supply curve to the right (see arrow 2 in Figure 7). Although the study focuses on mainstream media, the considerable increase of supply or suppliers for

online news comes not only from all types of mainstream media competing online, but also from amateur news or information providers. As of 2006, 28 percent of Americans reported ever reading someone else's online journal, web log or blog (Pew Research Center, 2006a), and the more successful bloggers, obtaining a large audience and/or carrying extensive advertising, began to look like the mainstream media (Tremayne, 2007). Back to the topic: One way to increase the level of profits is to decrease the number of suppliers or the amount of total supply through market competition so that the supply curve would shift back to the left.

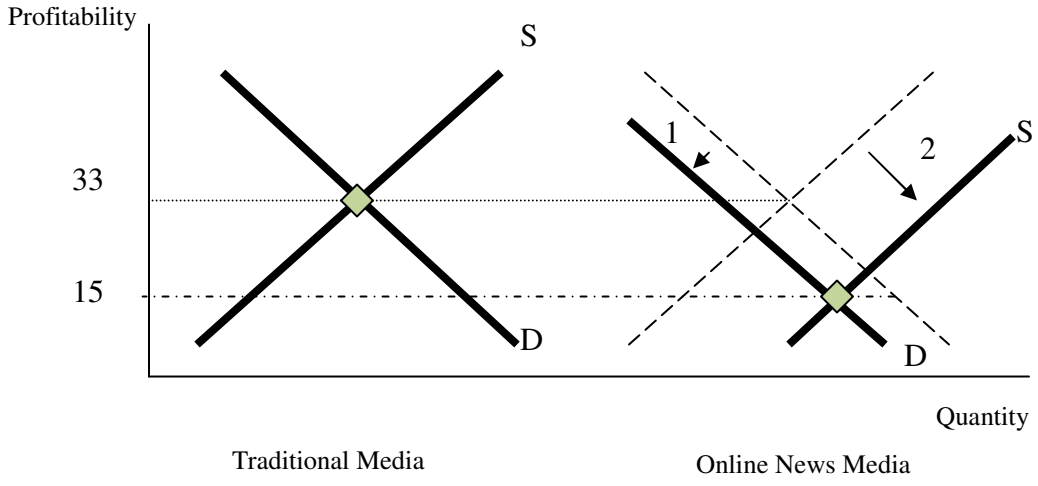

Figure 7. Supply and Demand Curve of the Traditional and the Online Media

Some preliminary evidence already showed that newspaper sites had gone through a certain degree of market competition. Recall that the number of local newspaper sites listed in Table 7 was 853 in 2005 and fell to 595 in 2006, showing that several hundreds of newspaper sites encountered difficulties in generating traffic because they no longer attracted at least 1,000 unique users per month as shown in the *Bacons's*

Internet Media Directory. As for local broadcast sites, they are relatively late-comers so a boom (from 259 in 2005 to 1,167 in 2006) appeared during the same period but – if the pattern for newspapers is any indication – the number of sites soon will decrease. All in all, only competitive sites will perform financially well in the lowly concentrated online news industry; others will lose competitiveness or choose to exit the market. But the larger question is how to perform well.

This dissertation sought to furnish solutions not based on experience or observation but based on economic theories. According to Shoemaker, Tankard, and Lasorsa (2004), theory is "concerned with explaining what is happening now and is likely to happen again" (p.6). So the dissertation's purpose was to: (a) borrow theoretical logic to explain the economic characteristics of the online news industry and (b) use the power of theories to suggest the industry's future. Specifically, the dissertation brought out the complementary elements of the industrial organization (IO) model and the resource-based view (RBV) of the firm model through an empirical analysis of both models' effects on market performance using a census of news sites cross-listed in the 2006 and 2007 editions of *Bacon's Internet Media Directory* with at least 1,000 unique users per month.

Although the study tested 8 hypotheses, examined 3 research questions, and conducted 1 *post hoc* analysis, the main findings are highlighted here. Mostly importantly, the study found IO's industry effects were more powerful than RBV's firm effects in explaining the online news sites' market performance. Industry effects uniquely explained 22 percent of variance in revenue growth, 13 percent in profitability, and 23 percent in relative performance after firm effects were controlled; firm effects explained 12 percent of variance in revenue growth, 6 percent in profitability, and 11 percent in relative performance after industry effects were controlled. In other words, industry variables explained about twice as much variance in market performance than did firm variables.

Secondly, the study conducted a *post hoc* analysis and found that RBV's firm effects were influential on traffic, rather than on market performance. Firm effects uniquely explained 79 percent of variance in traffic, whereas industry effects explained less than 1 percent. Lastly, the study found several bivariate relationships consistent with the hypotheses: Public ownership had positive, definite-but-small relationships with revenue growth, profitability, and relative performance; corporate parent had positive, definite-but-small relationships with profitability and relative performance. Implications, contributions, limitations, and thoughts for future research follow.

IMPLICATIONS

As to what the theories suggest for the online news industry's future, several comparisons made in the Analysis chapter suggest a few factors to consider. First, this study judged the IO model a more powerful theory than the RBV model in explaining market performance for the online news industry because industry effects explain about twice as much variance in revenue growth, profitability, and relative performance than did firm effects among the news sites. Put another way, the industry effects' explanatory power found in this study was equivalent to or higher than the degree found in other industries by other studies, but firm effects' explanatory power was not (see Table 22). This may suggest that not much room exists for industry effects to exert more influence on market performance, especially on revenue growth and relative performance because IO economists believe industry effects are relatively stable across industries and over time (McGahan & Porter, 1997). On the other hand, firm effects appear to have more room for influence on market performance in the online news industry. As long as news sites clearly communicate their ultimate goal(s) and aggregate their resources accordingly, much like the way they did for traffic, more firm resources tailored for market performance should have increasingly greater influence on market performance.

Second, this study suggested the relationship between industry effects and firm effects may not be causal but mediating, especially when profitability is concerned based on results found between RQ1 and RQ3 and between RQ2 and RQ3. It's important to point out the power of combining industry and firm effects: Together, industry and firm effects among the 7 studies in Table 23 explained between 19 and 66 percent of the total variance in market performance. Also, it's worth noting that more recent studies, which explored firms' heterogeneity, detected a size of 25 to 50 percent of firm effects, representing a substantial degree of market performance outcomes could be determined by a firm's behavior. Although this study find little firm effects on market performance, news sites – after adjusting their focus – may want to take advantage of developing strategies based on the determinants derived by the IO and RBV models because controlling those determinants means up to two-thirds of the variance in market performance (i.e., revenue growth, profitability, and relative performance) are under control.

Third, the study also identified the strongest explanatory variables of revenue growth, profitability, and relative performance for the online news industry after other variables were controlled. Knowing which variables have the strongest impact should help news sites more effectively develop strategies. Among the industry variables, public ownership was found to have the strongest and positive association with revenue growth and profitability, whereas market size had the strongest and negative association with relative performance (see Table 18). As alluded to earlier, the news sites' companies in this study as a whole had made good choices regarding public ownership and market size, which reflected a substantial amount of industry effects on their market performance. Thus, the implication is more geared for potential entrants: If a potential entrant plans to enter the online news market, ideal strategies include (a) creating an IPO (initial public

offering) for the company because stockholders' pressure, in a good way, makes a company more efficient and/or (b) participating in a smaller media market because smaller markets have fewer competitors and thus less uncertainty. Among the firm variables, brand name use had the most impact on revenue growth and relative performance, age of a site strongly influenced profitability, and number of employees had the strongest association with relative performance (see Table 19). For example, a news site mulling a URL to use would do well to name the URL after an existing brand, which will enable it to grow revenue and become competitive faster than a site with a new name because familiar media brands more easily draw advertisers. Moreover, a news site considering whether to shut down should maintain operations as long as the revenue earned from the business is more than the incurred variable costs because the study shows that older sites in the long run knew how to make profits on the Web better than younger sites. These results also answer whether employees are business assets or legal liabilities; given that staff size is the strongest explanatory variable of relative performance among rivals, employees remain a company's best asset.

CONTRIBUTIONS

Theoretical contribution

The dissertation advances several new viewpoints in terms of theory, practice, and measurement. In the quest for an adequate theoretical framework for analyzing market performance, many scholars recognize the IO's structure-conduct-performance model (e.g., Bain, 1959; Mason, 1939; Scherer & Ross, 1990). However, alternative perspectives (e.g., the RBV model) emerged to emphasize the influence of a firm's heterogeneous behavior on performance (e.g., Barney, 1991; Wernerfelt, 1984). Thus, the fundamental question is: Which perspective is right about the determinants of market

performance? Owing that many studies in the last decade found that firm effects were stronger than industry effects on market performance (e.g., Chang & Singh, 2000; Mauri & Michaels, 1998; McGahan & Porter, 1997; Rumelt, 1991), many scholars wonder whether industry structure still matters (e.g., McGahan & Porter, 1997; Rumelt, 1991) or whether it *ever* matters in media industries (Fu, 2003; Wirth & Bloch, 1995; Young, 2000). This study offers a unique look at one of the media industries – the online news industry – about the relative importance of IO's industry effects and RBV's firm effects on market performance. The results indicate that industry structure had a larger impact on performance than firm behavior, suggesting that IO's industry effects remain powerful in explaining the nature and extent of market performance in the context of the online news industry.

On the other hand, RBV's firm effects did generate strong explanatory power on another variable – traffic, which might provide some empirical evidence that firms' heterogeneity lead to differential performance. In other words, the results showed that, under the same industry structure, news sites – by possessing different resources – were able to perform differently in terms of traffic levels; and the explanatory power accounted for 79 percent of traffic variance. Since traffic levels could be considered the outputs of information markets in media industries (Picard, 1989), an alternative conclusion for this study is that industry effects are powerful in explaining the extent of market performance in media's advertising market, whereas firm effects are influential in explaining the output levels of media's information market. However, this study also warns that the information market should not be firm effects' destination but their *relay station*; otherwise the solvency challenge persists.

But a full account of market performance requires consideration of industry and firm effects: This study showed they complement, rather than substitute, each other

because a decreased explanatory power was detected when the other set of effects were controlled. By understanding how industry and firm effects work, firms are able to control up to 66 percent of variance in market performance, as found in some previous studies.

Practical contribution

This study found that online news sites devoted too many resources on traffic and too few on market performance, as reflected in firm effects' high explanatory power on traffic and little explanatory power on revenue growth, profitability, and relative performance (also confirming an earlier survey by Chyi & Sylvie, 2000). This may explain why the major challenge for the online news industry is solvency. However, it is not unusual for a nascent industry to experiment. Much like the advice of Newspaper Next seminar presenters from *Americanpressinstitute.org*, online news media might do well to stop worrying about developing "perfect" quality services or those backed by financially perfect financial projections; stop worrying about whether new services will fail; and stop taking years of internal reviews before launching such services. They instead might want to consider quickly launching new "good enough" services on the cheap, which many entrepreneurs suggested as a "invest little, learn a lot" strategy (americanpressinstitute.org or McLaughlin, 1996) As these services start to succeed or fail, online news media should quickly refine, revise, or discard the services. The bottom line: Since results show that market performance in the online news industry is more determined by industry structure, news sites first have to acknowledge the structure they belong to is a lowly concentrated one (i.e., many suppliers in a market) and then behave accordingly in response to that industry structure. In addition, results also showed that firm behavior is influential if tailored for a specific goal, so news sites may want to devote attention to valuable, rare, inimitable, and non-substitutable resources that have a

direct impact on a greater level of performance.

Another practical contribution of this study was to include news sites of different sizes (such as the larger ones – e.g., news.yahoo.com – and the smaller, e.g., wbgzradio.com) and of different ownership types (public or private). Since large news sites owned by public companies may not need these results as badly as the sites without ample resources or the sites that cannot afford market research, the publicly accessible results in the end should benefit the smaller sites most rather than the larger ones. Two executive summaries (see Appendix G & H) were emailed September and November 2007 to the online news managers responding to this study's survey. Several managers (mostly from small local sites) responded with great interest. For example, one manager from a local television site wrote, "Can you elaborate more on your results? We're currently developing several niche sites and I'm interested in your findings." (personal communication, Sept. 4, 2007). Also, another manager from a local newspaper site asked permission to blog some findings to his readers (Lail, 2007). Although the study definitely needs further research and replication, it is rewarding that the industry finds it useful to their concerns.

Measurement contribution

This study empirically tested several measures resulting from its literature review. First, the study measured audience concentration as an industry variable in explaining market performance. The idea was inspired by Chyi and Sylvie (1998) and Chan-Olmsted (2005), who addressed audiences as a crucial force of industry structure on the Internet. As a result, audience-related measures, e.g., traffic growth and traffic elasticity, were found to have positive relationships with revenue growth and profitability respectively. This suggests that using traffic as a cause, rather than an effect, helps explain some variance in market performance.

Second, this study considered subscription fees and advertising rates in the formula of traffic elasticity to project product differentiation for each news site. As Picard (1989) stated, media exist in a dual-product market (rare among industries) because media content simultaneously is marketed to subscribers and advertisers. Although results showed that only 9 percent of the news sites reported some revenue from subscription, it is important to always consider prices or revenue sources from information and advertising markets when conducting economic research in media industries.

Third, this study included scope economy as a measure of industry structure. Since Dimmick and Albarran (2005) developed a formula of potential scope economies fit for media firms, this study attempted to look for empirical evidence. Because the potential measure of scope economies is straightforward, only 2 out of 208 respondents couldn't provide answers for the questions about the types of content businesses and distribution systems which their company owned. Thus, the potential measure of scope economies was found testable in an empirical sense.

LIMITATIONS

A study such as this – especially when done for the first time – with little external references and previous studies within the industry, has limitations. First, although this study had a practical aim, the research foundation strictly followed the theoretical definitions of the industry organization and the resource-based view of the firm. Keeping with theory enabled the study to testify or contradict the power of a theory but it also risked including irrelevant variables and excluding important indicators. For example, the correlation coefficients found in this study were not strong, especially between the firm variables and the performance measures, which meant the firm variables derived from the RBV model could not explain market performance well though alternative explanations were provided.

Second, others will have to judge whether the multi-method approach to studying industry and firm effects on performance violated the research tradition in the areas of economics or management or whether it was an innovative way to conduct related research for various industries other than manufacturing. One methodological drawback in this study was the use of self-reported data. Since established industry reports don't provide financial data for business units like online news sites, as Chan-Olmsted and Ha (2003) suggested, using survey data is necessary when appropriate financial reports are unavailable. However, surveys are subject to artificiality (Babbie, 1998); i.e., a survey only can "collect self-reports of recalled past action or of prospective or hypothetical action" (p. 274). Because this study collected financial data through informants' self-reports, the results might be strong on reliability but less strong on validity. That is, if other researchers ask the same financial questions to those online news managers again, it's very likely they obtain the same answers as this study obtained; but whether the answers approximate the objective numbers remain unclear, though previous studies found perceptual data from top managers strongly correlated with data collected from internal account records (Dess & Robinson JR., 1984).

Third, attempting a census in general is a better approach than random sampling if the census size is large. However, the census approach in this study resulted from a small sampling frame, which represents 720 news sites cross-listed in the 2006 and 2007 editions of *Bacon's Internet Media Directory* with at least 1,000 unique users per month, so no further random sampling was possible. Although the census is actually a subset of an even larger universe — the online news industry, results still cannot represent the larger universe because the census was not randomly sampled; thus no inferential statistics were used. Besides, only 208 news sites replied to the survey and not all answered all questions (see Table 12 for valid N), so the study doesn't rule out the

likelihood of producing unstable regression models because of the missing data that led to a small N in a model. Despite the limitation, the census included all national sites and major local print and broadcast sites; and an assessment of non-response bias showed that there were no statistical differences between respondents and non-respondents and between earlier respondents and later respondents except for one variable, as mentioned in the Methods chapter. Also, the responding news sites include 1 Internet-only site, 5 news service sites, 6 national sites, 70 local broadcast sites, and 126 local newspaper sites, so they should represent a good cross-section of the industry but a true random sample generated from all online news sites, if possible, would have been excellent.

Fourth, there are three cautionary notes coming from data processing. One, ordinal variables such as revenue growth and profitability were treated as continuous so that correlation and regression statistics could be performed. Two, a violation of homogeneity between corporate parent and revenue growth might influence the results involving this relationship (i.e., corporate parent had a positive impact on revenue growth). Three, the correlation coefficients between the firm variables and performance measures were less than .15, representing very low associations, so results were reported with caution.

Finally, this study's evidence resulted from numbers, so it might lose some of the insights of qualitative depth. As we know, qualitative research is able to generate new theories or hypotheses and to achieve a deep understanding of the issues (Lindlof & Taylor, 2002), so the present study was unable to serve this purpose to the same extent. Through the in-depth knowledge of the online news industry by case studies of various online newsrooms or in-depth interviews with online news managers, developments and understanding of market performance could have been extended further. Instead, this study chose to advance current theoretical models (i.e., IO and RBV) by using a

standardized stimulus, collecting data from hundreds of online news sites to better understand the common characteristics of the online news industry.

FUTURE RESEARCH

A number of new research areas arise from this dissertation. First, future research may look closely into the linkage between the information market and the advertising market on the Internet. As noted earlier, the link is not yet built, so the solvency challenge remains; or, maybe media industries should reconsider the dual-product market model within the context of the lowly concentrated Internet industry. That is, what kind of business models may work in a lowly concentrated media market other than the dual-product market model?

Second, this study found several important determinants of market performance such as public ownership, brand name use, age of a site (experience), market size, and the number of employees. Future research may examine each determinant individually and thoroughly with market performance to specify their effects for contingencies (situations in which different actions are performed). For example, a research question could be asked about what situations enhance or weaken public ownership effects.

Third, this study found a stronger IO's industry effects than RBV's firm effects and suggested possible mediating effects of the two models because decreased explanatory power on market performance was found after the other model was controlled. Further research may focus on the mediating part of the two models and perform a path analysis or structural equation modeling to specify the type of relationship (causal or mediating) between IO and RBV, thus further clarifying the nature of the relationship.

Fourth, future research may want to more closely examine scope economies. Correlation results revealed a positive effect of scope economies on revenue growth and

relative performance but negative effects on profitability; previous studies also showed that firms with narrow diversification strategies financially outperformed firms with wider strategies. Future research, especially in media, may be able to subdivide diversification into print-to-print, broadcast-to-broadcast, print-to-broadcast, print-to-digital, broadcast-to-digital, and so on, to look at their separate effects on market performance.

Fifth, future research may search for other determinants of market performance. The industrial organization model and the resource-based view of the firm model are two of many, varied economic theories – e.g., innovation, entrepreneurship, leadership, and branding – trying to explain market performance (not to mention models deducted from observational results using an exploratory approach). In addition, public policies or government intervention are alternative political factors of market performance (Hoskins et al., 2004). After all, a good political or economic analysis does not have to hurt quality journalism and sometimes it may help researchers or practitioners look more thoroughly at the news industry.

Finally, longitudinal studies in media industries are necessary. Although the study argues that high traffic is not a sufficient condition for superior market performance, the causal relationship between traffic and market performance cannot be testified without long-term data. In the areas of economics or management, longitudinal research is the norm. For example, Rumelt (1991) studied the U.S. manufacturing industries from 1974 to 1977; McGahan and Porter (1997) examined all U.S. industries from 1981-1994; Chang and Sigh (2000) studies the U.S. manufacturing industries in 1981, 1983, 1985, 1987, and 1989. Longitudinal studies, involving repeated observations of the same items over extended periods, allow social scientists to distinguish short- from long-term phenomena, such as development or trends across time. Cross-sectional study yields

oblique conclusions. As many people have said, “The dissertation is the start of a researcher’s career, not the end,” so the author should have plenty time to conduct follow-up research.

Appendix A
Questionnaire

National Survey of the Online News Industry

(A) Questions about Your Business Behavior

Q1. In which year and month did your Web site launch?

Please write your answer(s) here:

Year (e.g., 1999): _____

Month (e.g., 05): _____

Q2. Which type of affiliation best describes your site?

Please choose **only one** of the following:

- ☐ A newspaper-affiliated site
- ☐ A television-affiliated site
- ☐ A radio-affiliated site
- ☐ An Internet-only site
- ☐ Other _____

[Only answer this question if you answered 'Blank, Annulled, None' or 'A radio-affiliated site' or 'Lula' or 'A television-affiliated site' or 'José Serra' or 'A newspaper-affiliated site' to question '02 ']

Q2-1. Some sites and their affiliations converge on one operation; others operate independently. How about your site?

Please choose **only one** of the following:

- ☐ Converged
- ☐ In transition toward convergence
- ☐ In transition toward independence
- ☐ Independent

Q3. Some sites borrow existing brand names from their companies; others create new ones. How is your site's domain name similar to an exiting brand?

Please choose **only one** of the following:

- ☐ The same (e.g., CNN vs. cnn.com)

☐ Similar (e.g., The New York Times vs. nytimes.com)

☐ Different (e.g., Bristol Herald Courier vs. tricities.com)

Q4. Based on your Web log records, approximately how much traffic did your site attract per month in 2006?

It's OK to be general (e.g., 1,000 or 2,000,000).

Please write your answer(s) here:

Number of unique visitors::

Number of pages views::

Q5. Approximately how many full-time employees work mainly for your site?

Please write your answer here:

Q6. Some companies require employees to sign a contract for retention but some don't. Are there any employees of your site under contracts?

Please choose **only one** of the following:

☐ Yes

☐ No

☐ Uncertain

Q7. The U.S. government protects original works of authorship, inventions, devices, names, and symbols. Has your site registered or filed the following kinds of intellectual property protection?

Please choose the appropriate response for each item:

	Yes	No	Uncertain
Copyrights	☐	☐	☐
Patents	☐	☐	☐
Trademarks or servicemarks	☐	☐	☐

[Only answer this question if you answered 'Yes' to question '08 ']

Q7-1. If yes, please specify a few intellectual works that have been copyrighted:

Please write your answer here:

[Only answer this question if you answered 'Yes' to question '08 ']

Q7-2. If yes, please specify a few inventions that have been patented:

Please write your answer here:

[Only answer this question if you answered 'Yes' to question '08 ']

Q7-3. If yes, please specify a few names or symbols that have been trademarked:

Please write your answer here:

Q8. Some sites have won awards; others have not. How many awards has your site won in the last 3 years?

Please enter 0 if there is none.

Please write your answer(s) here:

Number of local or regional awards::

If any, please specify a few local or regional awards::

Number of national or international awards::

If any, please specify a few national or international awards::

Q9. How much research and development (R&D) does your site undertake?

Please choose **only one** of the following:

- ☐ A lot
- ☐ Some
- ☐ Not much
- ☐ None

(B) Questions about Your Business Performance

Q10. Does your site charge any subscription fee?

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

[Only answer this question if you answered 'José Serra' or 'Yes' to question '14 ']

Q10-1. About how much was your annual subscription fee?

Please enter N/A if it's not applicable.

Please write your answer(s) here:

In fiscal 2006 ($):

In fiscal 2005 ($):

Q11. Does your site sell any advertisements?

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

[Only answer this question if you answered 'José Serra' or 'Yes' to question '16 ']

Q11-1. About how much was your advertising rate?

Please enter whichever applies.

Please write your answer(s) here:

Average banner CPM in fiscal 2006 ($):

Average banner CPM in fiscal 2005 ($):

Monthly banner rate in fiscal 2006 ($):

Monthly banner rate in fiscal 2005 ($):

Q12. About what percentage of your online revenue was from the following sources?

Please enter 0 if there is none.

Please write your answer(s) here:

Subscribers (%):

Advertisers (%):

Others (%):

If others, please specify a few::

Q13. Compared to fiscal 2005, your site's 2006 revenue was:

Formula: (2006 revenue - 2005 revenue / 2005 revenue) * 100

Please choose **only one** of the following:

- ☐ More than 50% higher
- ☐ 41-50% higher
- ☐ 31-40% higher
- ☐ 21-30% higher
- ☐ 11-20% higher
- ☐ 1-10% higher
- ☐ About the same
- ☐ 1-10% lower

- ☐ 11-20% lower
- ☐ 21-30% lower
- ☐ 31-40% lower
- ☐ 41-50% lower
- ☐ More than 50% lower
- ☐ Uncertain

Q14. Which type of ownership best describes your company?

Please choose **only one** of the following:

- ☐ A division of a public parent company
- ☐ A division of a private parent company
- ☐ A stand-alone public company
- ☐ A stand-alone private company
- ☐ A nonprofit organization
- ☐ Other

[Only answer this question if you answered 'Lula' or 'A division of a private parent company' or 'José Serra' or 'A division of a public parent company' or 'Blank, Annulled, None' or 'A stand-alone public company' or 'Don't know/ No Answer' or 'A stand-alone private company' to question '20 ']

Q14-1. What was your site's percentage of profitability in fiscal 2006?

Formula: (revenue - expenses / revenue) * 100

Please choose **only one** of the following:

- ☐ More than 50%
- ☐ 41-50%
- ☐ 31-40%
- ☐ 21-30%
- ☐ 11-20%
- ☐ 1-10%
- ☐ Break even
- ☐ Minus 1-10%
- ☐ Minus 11-20%
- ☐ Minus 21-30%
- ☐ Minus 31-40%

- [ ] Minus 41-50%
- [ ] Minus more than 50%
- [ ] Uncertain

Q15. Does your company or parent company own any of the following content businesses?

Please choose **all** that apply:

- [ ] Newspaper publishing
- [ ] Magazine publishing
- [ ] Radio programming
- [ ] Television programming
- [ ] Cable programming
- [ ] Internet publishing

Other: _____

Q16. Does your company or parent company own any of the following distribution systems?

Please choose **all** that apply:

- [ ] Printing press
- [ ] Magazine mailing house
- [ ] Broadcasting radio
- [ ] Broadcasting television
- [ ] Cable service
- [ ] Satellite service
- [ ] Internet service

Other: _____

Q17. Different Web sites perceive their competitors differently. Who are your site's major competitors? Please name up to three.

If they are Web sites, please specify domain names (e.g., cnn.com).

Please write your answer(s) here:

Competitor #1: _____

Competitor #2: _____

Competitor #3: _____

Q18. To the best of your knowledge, do you agree that your site performs much better than your major competitors in the following areas?

Please choose the appropriate response for each item:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Revenue growth	☐	☐	☐	☐	☐
Profitability	☐	☐	☐	☐	☐
Market share	☐	☐	☐	☐	☐
Content quality	☐	☐	☐	☐	☐

Q19. Lastly, what is the zip code of your office?

Please write your answer here:

Submit Your Survey.

Thank you for completing this survey. Please fax your completed survey to: by 2007-06-08.

Appendix B
IRB Approval Letter

OFFICE OF RESEARCH SUPPORT & COMPLIANCE

THE UNIVERSITY OF TEXAS AT AUSTIN

P.O. Box 7426, Austin, Texas 78713 (512) 471-8871 - FAX (512 471-8873)
North Office Building A, Suite 5.200 (Mail code A3200)

FWA# 2030

Date: **11/09/06**

PI(s): **Jing-rong Huang** Department & Mail Code: **JOURNALISM DEPT** **A1000**

Dear: **Jing-rong Huang**

IRB APPROVAL – IRB Protocol # **2006-10-0066**

Title: **Topic: How Much Does Market Structure Matter in the Online News Industry?**

In accordance with Federal Regulations for review of research protocols, the Institutional Review Board has reviewed the exempt status assessment of the above referenced protocol and found that it meets exempt approval under the category designated below for the following period: **11/09/2006 - 11/08/2007**

Any research involving surveys, interviews, or observation of children is not eligible for exempt review, unless it consists only of observational research where the investigator(s) do not participate in the activities being observed. Research that is FDA regulated cannot be granted an exemption except for category 6. (Research is FDA-regulated when it involves the use of a drug or medical device, other than the use of an approved drug or medical device in the course of medical practice, or when the results are to be submitted to or held for inspection by the FDA.) Unless otherwise required by Department or Agency heads, exempt research must fall within one of the following categories:

___1. Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as:
(i) research on regular and special education instructional strategies, or
(ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
(iii). The research is not FDA-regulated

_x_2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
(i.) Information obtained is recorded in such a manner that human subjects can be identified, directly or through

identifiers linked to the subjects: and
(ii.) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subject's financial standing, employability, or reputation; or
(iii.) The research involves surveys, interviews, or observation of children (where the investigator does not participate in the activities being observed);
(iv.) The research is not FDA-regulated

___3. Research involving the use of educational tests, survey or interview procedures, or observing public behavior that is not exempt under number 2 above, if the subjects are public officials or candidates for public office or a federal statute requires that the confidentiality of personally identifiable information will be maintained throughout the research and thereafter. The research is not FDA-regulated

___4. Research involving the collection or study of existing data, documents, records, pathological or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, either directly or through identifiers linked to the subjects. To qualify for exemption, the data, documents, records or specimens must be in existence before the project begins. The research is not FDA-regulated

___5. Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate; or otherwise examine:

i. Public benefit or service programs;
ii. Procedures for obtaining benefits or services under those programs;
iii. Possible changes in-or alternatives to those programs or procedures; or
iv. Possible changes in methods or levels of payment for benefits or services under those programs.
v. The program under study must deliver a public benefit (e.g., financial or medical benefits as provided under the Social Security Act or service (e.g., social, supportive, or nutrition services as provided under the Older Americans Act).
vi. The research or demonstration project must be conducted pursuant to specific federal statutory authority;
vii. There must be no statutory requirement that an IRB review the project;
viii. The project must not involve significant physical invasions or intrusions upon the privacy of participants;
ix. The funding agency must authorize or concur with this exemption.
x. The research is not FDA-regulated

___6. Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

____Please use the attached approved consent forms

_x_Waiver of Documentation of Consent

____Waiver of Informed Consent

RESPONSIBILITIES OF PRINCIPAL INVESTIGATOR FOR ONGOING PROTOCOLS:

(1) Report immediately to the IRB any unanticipated problems.
(2) Proposed changes in approved research during the period for which IRB approval cannot be initiated without IRB review and approval, except when necessary to eliminate apparent immediate hazards to participant. Changes in approved research initiated without IRB review and approval to eliminate apparent immediate hazards to the participant must be promptly reported to the IRB, and reviewed under the unanticipated problems policy to determine whether the change was consistent with ensuring the participants continued welfare.
(3) Report any significant findings that become known in the course of the research that might affect the willingness of subjects to continue to take part.
(4) Insure that only persons formally approved by the DRC enroll subjects.
(5) If relevant to your study, please use only a currently approved consent form (remember approval periods are for 12 months or less).
(6) Protect the privacy and confidentiality of all persons and personally identifiable data, and train your staff and collaborators on policies and procedures for ensuring the privacy and confidentiality of participants and information.
(7) Submit for review and approval by the IRB all modifications to the protocol or consent form(s) prior to the implementation of the change.
(8) Please note that this office will send out a reminder prior to the end of your approval period (typically at the end of the 12 months). At this time we will ask you to give us an update on whether the study is still in progress and/or has had any changes that need to be reviewed for approval.
(9) Notify the IRB and the DRC when the study has been completed and complete the Final Report Form.
(10) Please help us help you by including the above protocol number on all future correspondence relating to this protocol.

Thank you for your help in this matter.

Sincerely,

Lisa Leiden Ph.D., IRB Chair,
Director of the Office of Research, Support, & Compliance

Appendix C
Survey Cover Letters

First contact: Prenotice

Subject: The online news industry needs your help.

Dear {FIRSTNAME},

Journalism, the news media, and the entire communication industry face an uncertain future because of changing technologies and economic uncertainty. As a doctoral student in the School of Journalism at the University of Texas at Austin, I am trying to provide a solution.

In a few days you will receive an e-mail request to fill out a short questionnaire examining market performance factors in the online news industry. I want to provide a clearer picture of what factors will most impact success in that arena.

You're getting this advance notice because I know many people like to know ahead when they'll be contacted. If you participate, you will receive an executive summary of my solution at the end of August, 2007.

Thank you for your time and consideration. With the generous help of people such as you, I hope to improve the future of online news.

Sincerely,
J. Sonia Huang
sonia.huang@mail.utexas.edu
Doctoral Candidate
School of Journalism
University of Texas at Austin
Austin, TX 78712
(512) 638-3759

Second contact: Questionnaire

Subject: The online news industry needs your help.

Dear {FIRSTNAME},

I'm writing to ask your help in a study examining market performance factors in the online news industry. The news media face an uncertain future because of changing technologies and economic uncertainty. As a doctoral student in the School of Journalism at the University of Texas at Austin, I am trying to provide a clearer picture of what factors will most impact success on the Internet.

Your Web site (SITENAME) is one of a small group of sites that were randomly selected to participate in the study; and you were chosen because your position should have the best knowledge of your site performance. It will take about 10 minutes or less to complete the two-page questionnaire. The survey will be closed at midnight Friday, June 8th.

Your participation in this study is voluntary. Also, the questionnaire is strictly confidential. The results of the study will be used in my dissertation and may be published, with the data only being reported in the aggregate. This study is not commissioned or funded by any company.

If you participate, you will receive an executive summary of my findings at the end of August, 2007.

To participate, please click on the link below:
{QUESTIONNAIREURL}

Thank you very much for helping with this important study.

Sincerely,
J. Sonia Huang
sonia.huang@mail.utexas.edu
Doctoral Candidate
School of Journalism
University of Texas at Austin
Austin, TX 78712
(512) 638-3759

Third contact: First reminder

Subject: Reminder

Dear {FIRSTNAME},

Recently I invited you to participate in a study examining the factors of market performance in the online news industry. Even if you (SITENAME) don't see yourself as news provider, the fact that you compete with those news providers means your valuable response will give a more complete view of the Internet media market.

I noted that you have not yet completed the survey, and wish to remind you that the survey still is available should you wish to take part. The survey will be closed at midnight Friday, June 8th.

If you participate, you will receive an executive summary at the end of August, 2007. In the summary, you will mainly find (1) which factors of market performance are more significant than others and (2) how much each significant factor matters to a Web site's performance in a given market.

To participate, please click on the link below:
{QUESTIONNAIREURL}

I am especially grateful for your help because only by asking individual sites to share information that we can have a clearer picture of what factors most impact Internet media success amidst changing technologies and economic uncertainty.

Have a nice day!

Sincerely,
J. Sonia Huang
sonia.huang@mail.utexas.edu
Doctoral Candidate
School of Journalism
University of Texas at Austin
Austin, TX 78712
(512) 638-3759

Fourth contact: Telephone + email reminders

Subject: Reminder

Dear {FIRSTNAME},

Earlier today I called you about a study examining the factors of market performance in the online news industry. In case you can't find the original emails, here is a replacement:

Since SITENAME is one of a small group of sites randomly selected to participate in the study, it's only by hearing from most of you in the sample that I can be sure the results are truly representative. It will take you about 10 minutes or less to complete the 19 questions. The survey will be closed at midnight Friday, June 8th.

To participate, please click on the link below:
{QUESTIONNAIREURL}

If you participate, you will receive an executive summary at the end of August, 2007. In the summary, you'll mainly find (1) which factors of market performance are more significant than others and (2) how much each factor matters to a Web site's performance in a given market.

I am especially grateful for your help because only by asking individual sites to share information that we can have a clearer picture of what factors most impact Internet media success amidst changing technologies and economic uncertainty.

Have a nice day!

Sincerely,
J. Sonia Huang
sonia.huang@mail.utexas.edu
Doctoral Candidate
School of Journalism
University of Texas at Austin
Austin, TX 78712
(512) 638-3759

Fifth contact: Supervisor's reminder

Subject: Important deadline: Friday, June 8th

Dear {FIRSTNAME},

As associate director of the University of Texas-Austin School of Journalism, I hope we can count on your participation in Ms. Sonia Huang's Internet news site business study.

To my knowledge, this is a unique chance for us in academia to do some applied research that will actually help people like you at SITENAME. All we need is a few minutes of your time.

In return, you'll be among the first to see the results and you'll have the satisfaction of knowing you played a small-but-vital part in the effort. The survey will be closed this week at midnight Friday, June 8th. So please consider completing the questionnaire by going to:

{QUESTIONNAIREURL}

Ms. Huang's work promises to shed light on what you already know to be a complex business. Please help her succeed.

Sincerely,
George Sylvie
Associate Professor & Associate Director
School of Journalism
The University of Texas at Austin
E-mail g.sylvie@mail.utexas.edu
Phone 512-471-1783

Sixth contact: Last day reminder

Subject: Deadline for a dissertation survey is TODAY.

Dear {FIRSTNAME},

I know you're extremely busy and, while I've sent you several emails this month about a study I'm conducting for the Internet media industry, I really wouldn't bother you if I didn't think it was for a good reason.

I'm doing this study to help Internet media understand (1) which factors of market performance are more significant than others and (2) how much each factor matters to a Web site's performance in a given market.

The survey is closing TODAY, and this is the last chance I have to tap into the best knowledge of your Web site (SITENAME) performance. I'm also concerned that people who have not responded may have had different experiences than those who have. Hearing from everyone in this small national sample assures the most accurate results possible.

I want to assure you that your response is voluntary; if you prefer not to respond, that's fine. However, if you no longer work for the company, or you feel I make a mistake including you in this study, please let me know by hitting "reply" with a note indicating so. This would be very helpful.

I appreciate your willingness to consider this last request. To participate the 19-question survey, please click on the link below:

{QUESTIONNAIREURL}

Sincerely,
J. Sonia Huang
sonia.huang@mail.utexas.edu
Doctoral Candidate
School of Journalism
University of Texas at Austin
Austin, TX 78712
(512) 638-3759

Appendix D
Testing Assumptions for Regression Analysis

Assumptions

Before conducting regression analyses, a test of assumptions was necessary to ensure the appropriateness and quality of the analyses. If assumptions such as normality, linearity, homoscedasticity, and multicollinearity are violated, it will underestimate the strength of the statistical method or fail to detect the existence of a relationship (Hair et al., 2005). The normality assumption is that the combination of variables follows a multivariate normal distribution. Linearity means that the amount of change or rate of change, between scores on two variables, is constant for the entire range of scores for the variables. Homoscedasticity refers to the assumption that that the dependent variable exhibits similar amounts of variance across the range of values for an independent variable. Multicollinearity is more a problem in regression analysis that occurs when two independent variables are highly correlated (e.g., r = 0.90, or higher). In practice, normality is to review the distributions of the main variables of interest; linearity is to look at bivariate scatterplot of the variables; homoscedasticity is to test the Levene statistic which assumes the variance of the dependent variable is equal across groups defined by the independent variable; multicollinearity is to examine the tolerance[18] value for each independent variable. As a rule, violation of normality, linearity, and homoscedasticity can be fixed by variable transformations, but if two independent variables are highly correlated and cause multicollinearity, one of the variables must be dropped from further analysis.

Test of assumptions

To test assumptions for regression, there are four steps in the process. First, the normality of the all variables except for the two dichotomous variables, pubic ownership and corporate parent was tested. If a transformation resolved non-normality, it substituted the original variable in the analysis before testing for linearity. The following table shows that revenue growth, profitability, relative performance, brand name use, and R&D intensity met the normality assumption; whereas traffic growth, market size, traffic elasticity, scale economies, discrete properties, age of a site, number of employees, awards, and convergence didn't satisfy the criteria but transformations were available to induce normality. For non-normal distributions, there are four most common transformations: logarithms, square root, square, and inverse (Hair et al., 2005). Logarithms and square root are used when a positively skewed distribution happens; a square transformation is used when negative skewness occurs; inverse is used when a flat distribution is found. Following the guideline, traffic growth, scale economies, number of employees, awards, and convergence were transformed by logarithms; market size, discrete properties, and age of a site were transformed by square root; traffic elasticity

[18] Tolerance is the amount of variability in one independent variable that is not explained by the other independent variables.

was inversely transformed (see the 2nd column of the following table).

Testing Assumptions for Regression Analysis

	Normality	Linearity	Homogeneity	Multicollinearity
Revenue growth	Yes	Yes	--	--
Profitability	Yes	Yes	--	--
Relative performance	Yes	Yes	--	--
Traffic growth	Logarithms	--	--	Yes
Market size	Square root	--	--	Yes
Traffic elasticity	Inverse	--	--	Yes
Public ownership	--	--	Yes	Yes
Corporate parent	--	--	No	Yes
Scale economies	Logarithms	--	--	Yes
Discrete properties	Square root	--	--	Yes
Age of a site	Square root	--	--	Yes
Brand name use	Yes	Yes	--	Yes
Num. of employees	Logarithms	--	--	No
Num. of awards	Logarithms	--	--	No
Convergence	Logarithms	--	--	Yes
R&D Intensity	Yes	Yes	--	Yes

Second, the linearity between the dependent variables and each independent variable which was not transformed for normality was tested because each variable can only be transformed once. As a result, the assessment of the linear relationship among brand name use, convergence, revenue growth, profitability, and relative performance were weak, rather than nonlinear. That is, the variables which hadn't been transformed met the linearity assumption (see the 3rd column of the above table).

Third, for each dichotomous variable, the assumption of homogeneity of variance was tested. Bases on the Levene Test, the variance in three performance measures (i.e., revenue growth, profitability, and relative performance) was homogeneous for the categories of public ownership and corporate parent except for the variance in revenue growth for corporate parent. However, for this particular relationship, no transformation could remedy the problem because neither the logarithmic, nor the square root, nor the inverse transformation induced equal variance across groups.

Fourth, the multicollinearity is examined by the tolerance value for each independent variable. In general, a tolerance value less than .10 indicates collinearity. Among the independent variables, the study found collinearity between number of employees and number of awards. To resolve the problem, one of the collinear variables must be removed or combined otherwise the interpretation of the relationships would be false (Hair et al., 2005). Thus, the variable, number of awards (valid N=171), was omitted from further regression analysis because it had fewer valid numbers than the other

variable, number of employees (valid N=206).

In sum, there was only one situation which violated the assumptions for regression and could not be remedied by any form of transformations: the violation of homogeneity between corporate parent and revenue growth. A cautionary note is added to findings involving this relationship because of the violation.

Appendix E
Designated Market Areas

Nielsen
Media Research

Nielsen Media Research Local Market Universe Estimates

Estimates as of January 1, 2007 and used throughout the 2006-2007 television season

Effective September 23, 2006

RANK	Designated Market Area (DMA)	TV Homes	% of US
1	New York	7,366,950	6.616
2	Los Angeles	5,611,110	5.039
3	Chicago	3,455,020	3.103
4	Philadelphia	2,941,450	2.642
5	San Francisco-Oak-San Jose	2,383,570	2.141
6	Dallas-Ft. Worth	2,378,660	2.136
7	Boston (Manchester)	2,372,030	2.130
8	Washington, DC (Hagrstwn)	2,272,120	2.041
9	Atlanta	2,205,510	1.981
10	Houston	1,982,120	1.780
11	Detroit	1,938,320	1.741
12	Tampa-St. Pete (Sarasota)	1,755,750	1.577
13	Phoenix (Prescott)	1,725,000	1.549
14	Seattle-Tacoma	1,724,450	1.549
15	Minneapolis-St. Paul	1,678,430	1.507
16	Miami-Ft. Lauderdale	1,538,620	1.382
17	Cleveland-Akron (Canton)	1,537,500	1.381
18	Denver	1,431,910	1.286
19	Orlando-Daytona Bch-Melbrn	1,395,830	1.254
20	Sacramnto-Stkton-Modesto	1,368,680	1.229
21	St. Louis	1,228,980	1.104
22	Pittsburgh	1,163,150	1.045
23	Portland, OR	1,117,990	1.004
24	Baltimore	1,097,290	0.985
25	Indianapolis	1,060,550	0.952
26	Charlotte	1,045,240	0.939
27	San Diego	1,030,020	0.925
28	Hartford & New Haven	1,014,630	0.911
29	Raleigh-Durham (Fayetvlle)	1,006,330	0.904
30	Nashville	944,100	0.848
31	Kansas City	913,280	0.820
32	Columbus, OH	898,030	0.807
33	Cincinnati	886,910	0.797
34	Milwaukee	882,990	0.793
35	Salt Lake City	839,170	0.754
36	Greenvll-Spart-Ashevll-And	826,290	0.742
37	San Antonio	774,470	0.696
38	West Palm Beach-Ft. Pierce	772,140	0.693
39	Grand Rapids-Kalmzoo-B.Crk	734,670	0.660
40	Birmingham (Ann, Tusc)	723,210	0.650

Note: For a complete list of Nielsen Media Research's Designated Market Area, please go to http://www.nielsenmedia.com/nc/portal/site/Public/menuitem.3437240b94cacebc3a81e810d8a062a0/?vgnextoid=130547f8b5264010VgnVCM100000880a260aRCRD

Appendix F
Distributions of Variables

Descriptive Statistics

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Revenue growth	171	-.492	.186	-.180	.369
Profitability	143	-.895	.203	.641	.403
Relative performance	169	-.381	.187	-.328	.371
Traffic growth	206	3.815	.169	17.962	.337
Market size	208	-1.168	.169	.483	.336
Public ownership	203	-.070	.171	-2.015	.340
parent vs. stand-alone companies	203	-1.945	.171	1.802	.340
Traffic elsticity	124	5.000	.217	30.430	.431
Scale economies	206	1.645	.169	2.895	.337
Age of a site	208	-.995	.169	2.402	.336
Existing brand names	207	-.772	.169	-.737	.337
Discrete properties	123	.122	.218	-1.031	.433
Convergence	184	-1.244	.179	-.008	.356
R&D	203	-.308	.171	-.348	.340
Number of employees	206	6.808	.169	55.851	.337
Number of awards	171	9.711	.186	111.394	.369
Valid N (listwise)	49				

Appendix G
Executive Summary I[19]

Journalism, the news media, and the entire communication industry face an uncertain future because of changing technologies and economic uncertainty. As a doctoral student in the School of Journalism at the University of Texas at Austin, I am trying to provide a solution from my area of interest: media economics. Thank you so much for all of participation so that the National Survey of the Online Media Industry could be completed. This Executive Summary presents background information on the survey methodology and highlights notable findings of key determinants of superior market performance, as well as implications from the findings.

Survey background

The *Bacon's Internet Media Directory*, a well-known directory in the industry, was selected to compile an email list. Acknowledging that the number of media sites changes daily, no complete list exists so the study used the directory as a sampling frame. To meet various requirements for variables under study, I examined only U.S. media sites that were cross-listed in the 2006 and 2007 editions of *Bacon's Internet Media Directory* and had at least 1,000 unique users per month. Because of a high turnover rate among local newspaper sites during this period, it yields a total number of 720 media sites. The final list includes 5 portal sites, 24 national print and broadcast media sites, 23 news service sites, 258 local broadcast sites, and 410 local newspaper sites. The list covers all national print, television, radio, and cable sites (e.g., usatoday.com, abcnews.com, npr.org, cnn.com) and major local sites with at least 1,000 unique users per month.

Of the 720 respondents that were emailed, 208 completed the survey during a four-week period in May and June 2007. However, there were 119 bounce-backs. In computing response rate, an accepted practice is to omit all questionnaires that could not be delivered (Babbie, 1990). Accordingly, 208 respondents replied the survey, yielding a final response rate of 34.6 percent (208 of 601).

Result summary

Since this study examined 13 determinants on 3 market performance measures, 39 bivariate relationships were tested. In general, the strength of the relationships, ranging from .00 to .27, was not strong (<.30), so directional results were analyzed but with caution. Among the 39 relationships, 26 supported the hypotheses because they had positive correlations with the three performance measures; 2 had no relationships; and 11 had negative correlations (see the signs in Table 1). Looking at the direction distribution, five patterns also were summarized in the table.

In pattern 1, I found that public ownership, corporate parent, brand name use, and R&D

[19] The Executive Summary was sent September 2007.

intensity all were able to increase revenue growth, profitability, and competitiveness. In pattern 2, increasing the number of employees, number of awards, and degree of convergence was able to increase profitability and competitiveness but might not help revenue growth. In pattern 3, traffic elasticity (i.e., the price-traffic ratio), age of a site, and market size (i.e., DMA) were able to increase profitability but had zero or negative influence on revenue growth and competitiveness. In pattern 4, diversification and discrete properties (i.e., copyrights, patents, trademarks, and exclusive contracts) were able to increase revenue growth and competitiveness but had zero or negative impact on profitability. In pattern 5, traffic growth was able to increase revenue growth but at the same time decreased profitability and competitiveness.

Table 1 Five Patterns Derived from Hypotheses Testing

Pattern		Revenue growth	Profitability	Competitiveness
1	Public ownership	+	+	+
	Corporate parent	+	+	+
	Brand name use	+	+	+
	R&D intensity	+	+	+
2	Num. of employees	-	+	+
	Num. of awards	-	+	+
	Convergence	-	+	+
3	Traffic elasticity	-	+	-
	Age of a site	-	+	-
	Market size	0	+	-
4	Diversification	+	-	+
	Discrete properties	+	0	+
5	Traffic growth	+	-	-

Implications

The five patterns were identified based on the correlation results I found from the 208 media sites I surveyed. But what do they all mean? The five patterns suggest different strategic tools your site can apply to your areas of concern. First and foremost, each media site should be very clear about what your ultimate goal is. If revenue growth is your objective, pattern 1, 4, and 5 are ideal tools to increase revenue (see the 3rd column of Table 1). That is, a media site may aim at operating in a public company under a corporate parent, using an existing brand name, undertaking more R&D, diversifying extra product lines, creating new intellectual properties, and generating additional traffic. If profitability is of concern, pattern 1, 2, and 3 are better ways to pursue (see the 4th column of Table 1). If competitiveness is your goal, pattern 1, 2, and 4 are worth trying (see the 5th column of Table 1). As a rule of thumb, be patient with revenue growth but don't be patient with profitability and competitiveness.

Secondly, if your site sets up multiple goals, you should be very careful about trade-off effects. For example, pursuing pattern 2 and 5 together or pattern 3 and 4 together may weaken each determinant's effect on market performance. For example, if a media site

makes constant efforts in growing traffic, which may increase revenue growth, but when the site also pursue pattern 2, the increased revenue growth may be leveled off by the number of employees, the number of awards, and the degree of convergence. It is like you pour some water into a glass but then you spill some out. Noted that pattern 1 is a relatively safe strategy to apply because public ownership, corporate parent, brand name use, and R&D intensity all have positive correlation with revenue growth, profitability, and competitiveness. Although some may argue a media site has no right to choose its company, public or private, corporate or independent, media owners do. A successful media site depends on strategies developed at multi-levels (e.g., business, segment, and company) including media ownership.

Conclusions

Aside from the results presented above, this study also found that online media devoted too many resources on traffic and too few on market performance, which reflects on the weak correlations between the determinants and market performance but strong correlations between the determinants and traffic. This may explain why the major challenge for the online media industry is solvency. However, it is not unusual for a nascent industry to venture around and in fact it is very common. Borrowing some insights I learned from the *Newspaper Next* seminar (americanpressinstitute.org), online media should stop worrying about developing 'perfect' quality services or those backed by financially perfect financial projections; stop worrying about whether new services will fail; and stop taking years of internal reviews before launching such services. You instead should quickly launch new 'good enough' services on the cheap, which suggested by many entrepreneurs as "invest little, learn a lot." As these services start to succeed or fail, the online media should quickly refine, revise, or discard the services until you reach your ultimate goal.

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Appendix H
Executive Summary II

Thank you so much for all of the participation so that the National Survey of the Online Media Industry could be completed. After a discussion with the my dissertation committee, the Executive Summary II is a replacement of the Executive Summary I because of the usefulness of the data presented and because my dissertation committee suggested – after reviewing initial results – more conservative, academic-based interpretive guidelines.

Survey background

The *Bacon's Internet Media Directory*, a well-known directory in the industry, was selected to compile an email list. Acknowledging that the number of media sites changes daily, no complete list exists so the study used the directory as a sampling frame. To meet various requirements for variables under study, I examined only U.S. media sites that were cross-listed in the 2006 and 2007 editions of *Bacon's Internet Media Directory* and had at least 1,000 unique users per month. A total of 720 media sites were selected on a list. The final list includes 5 portal sites, 24 national print and broadcast media sites, 23 news service sites, 258 local broadcast sites, and 410 local newspaper sites. The list covers all national print, television, radio, and cable sites (e.g., usatoday.com, abcnews.com, npr.org, cnn.com) and major local sites with at least 1,000 unique users per month. Of the 720 respondents that were emailed, 208 completed the survey during a four-week period in May and June 2007. However, there were 119 bounce-backs, representing undeliverable emails. In computing response rate, an accepted practice is to omit all questionnaires that could not be delivered (Babbie, 1990). Accordingly, 208 respondents replied to the survey, yielding a final response rate of 34.6 percent (208 of 601).

Key Statistics

Since the questionnaire contained two sections: (A) questions about your business behavior and (B) questions about your business behavior, frequency tables are presented in this order.

(A) Questions about Your Business Behavior

With regard to subscription and advertisement models a Web site mainly adopted, 99 percent of participating sites sold advertisements, whereas only 5 percent of the sites charged subscription fees. Participating sites approximately equally distributed in public and private companies. 85 percent of the participating sites had corporate parents, representing that fact that most media sites are affiliates of traditional media. The majority of participating sites have launched on the Web for more than ten years and only 1 percent of the sites were created after 2003. More than half of the participating sites used exiting brands as their domain names. In terms of staff size, the majority of online news room employed less than five people. Besides, 79 percent of participating sites won

less than five awards in the last three years. As to convergence, 81 percent of the participating sites were either converged or toward convergence with their affiliations.

Table 1. Questions about Your Business Behavior

Questions	Categories	Percent
Does your site charge any subscription fee?	Yes	5
	No	95
	Total	100
	(valid cases)	(206)
Does your site sell any advertisement?	Yes	99
	No	2
	Total	100
	(valid cases)	(201)
Which type of ownership best describes your company? (data is recoded)	Public company	52
	Private company	48
	Total	100
	(valid cases)	(203)
Which type of ownership best describes your company? (data is recoded)	With corporate parent	85
	Stand-alone company	15
	Total	100
	(valid cases)	(203)
In which year and month did your Web site launch? (data is recoded)	More than 10	55
	5-10	43
	Less than 5	1
	Total	100
	(valid cases)	(208)
How is your site's domain name similar to an existing brand?	The same	54
	Similar	31
	Different	15
	Total	100
	(valid cases)	(207)
Approximately how many full-time employees work mainly for your site? (data is recoded)	More than 10	20
	5-10	23
	Less than 5	57
	Total	100
	(valid cases)	(206)
How many awards has your site won in the last 3 years? (data is recoded)	More than 10	5
	5-10	16
	Less than 5	79
	Total	100
	(valid cases)	(171)
Some sites and their affiliations converge on one operation; others operate independently. How about your site?	Convergence	61
	Toward Convergence	20
	Toward Independence	2
	Independent	17
	Total	100
	(valid cases)	(184)
How much research and development does your site undertake?	A lot	15
	Some	49
	Not much	28
	None	8
	Total	100
	(valid cases)	(203)

(B) Questions about Your Business Performance

Compared to fiscal 2005, 81 percent of the participating sites made more revenue in 2006, whereas 15 percent of the sites made less revenue. In terms of profitability, 61 percent of the participating sites had positive profits, whereas 34 percent of the sties lost money in fiscal 2006. When each Web site's manager was asked to assess their competitiveness, 63 percent of participants agree that they perform much better than their major competitors. Note that a substantial amount (31%) of participants reported "neither agree nor disagree."

Table 2. Questions about Your Business Performance

Questions	Categories	Percent
Compared to fiscal 2005, your site's 2006 revenue was: (data is recoded)	More than 30% higher	47
	1-30% higher	34
	About the same	5
	1-30% lower	1
	Less than 30% lower	14
	Total	100
	(valid cases)	(171)
What was your site's percentage of profitability in fiscal 2006? (data is recoded)	More than 30%	31
	1-30%	30
	Break even	6
	Minus 1-30%	6
	Less than minus 30%	28
	Total	100
	(valid cases)	(143)
To the best of your knowledge, do you agree that your site performs much better than your major competitors? (data is recoded)	Strongly agree	18
	Agree	45
	Neither agree nor disagree	31
	Disagree	5
	Strongly disagree	1
	Total	100
	(valid cases)	(169)

The results presented above were actually tested in two economic models (i.e., the industrial organization model and the resource-based view of the firm model). If you are interested in knowing more about the results of each model's explanatory power, please contact me and I am willing to share them with you.

Contact info:
J. Sonia Huang
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The University of Texas at Austin
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Vita

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